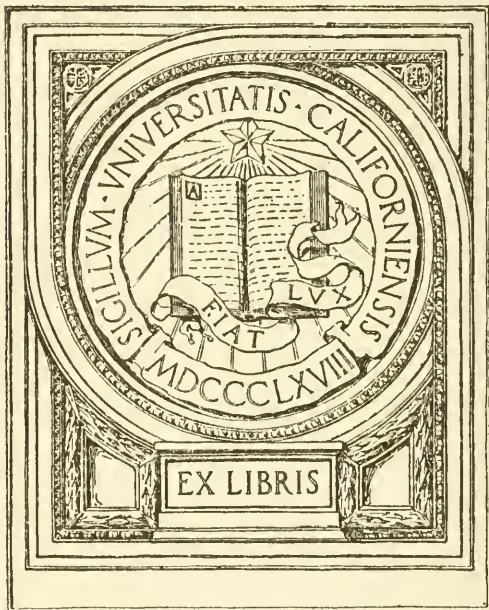


OUR ECONOMIC ORGANIZATION



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OUR ECONOMIC ORGANIZATION

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PREFACE

THIS book has been prepared for those who are beginners in the study of economics, or who are making their first serious study of the business of social living. It is an attempt to describe the way in which we live and work with one another in modern life in our effort to gratify our wants.

The material is an outgrowth of a considerable period of experience and experiment both with secondary school students and with beginners in university classes in economics. The book has been used successfully in mimeographed form in a variety of institutions and has in its present form the benefit of many suggestions from these sources. At the University of Chicago it has been used, with much supplementary material, in a course for freshmen. This course is followed by one of equal length on value and distribution.

In the minds of the authors, the distinguishing feature of the volume is the effort to depict social structures in terms of what they do. The *functions*, the *uses*, the *work*, of banks, of business organization, of competition, of specialization, of government, of scientific management, of education, and of the other multitudinous agencies which together make up our modern want-gratifying machine, are the matters with which the book is concerned. It is a study of the devices which exist in industrial society, primarily in terms of their activities, and, quite secondarily, in terms of their structures.

The more experienced reader may be surprised that separate sections on value and distribution, which hold such central places in many texts, do not appear in this work. The authors believe that in an introductory work of the type here presented the violation, if any, is chiefly to tradition. The usefulness, in an introductory course, of building the presentation around the

abstract type of value and distribution theory (especially before the student has become acquainted with the actual structures of the market, the nature of coöperative production, and the significance of pecuniary guidance) has been repeatedly questioned by experienced teachers of economics. There is no allegation that "value theory" is without place; there is a query concerning the best use to make of it in an introductory course. The authors have no desire to take any final stand concerning the appropriate organization of any course in this period of experimentation in economics teaching. They have found, however, that there is a place for an introductory course of the type contained in this book, and they have omitted separate discussion of value and distribution theory with the more composure because of the large number of available texts which so ably present that material.

The authors think of the book, from the point of view of teaching technique, as being made up of three parts. The first part is made up of Studies I and II. Here the student is given a bird's-eye view of the problems at issue. Studies III to VIII, on medieval industrial society and the coming in of capitalism, form a second part. These studies are not "historical" in any orthodox sense of the term. They are a somewhat more extended introductory view of the problems at issue, in which the device of comparative study is utilized. They really present another general survey of modern industrial society, but they do it "over the shoulder" of a former society. Study IX begins the third part of the work, which is devoted to a more direct, detailed, and systematic study of our present economic organization.

The use of the problems should be a matter of judgment with individual instructors. The problems are of different degrees of difficulty and of varied types. Those should be chosen for study which the instructor believes will be best adapted to his location, his students, and his object at any given moment.

It will be apparent that the references for further study, given at the end of each study, have been confined to a very

small list of those works which may be used in quite close connection with the scheme of presentation here followed. Perhaps it should be mentioned that the *Lessons in Community and National Life* (published by the United States Bureau of Education and obtainable at a small charge from the Superintendent of Documents, Washington, D. C.) are not designed for college use. So far as the authors know, they have been used only in secondary schools. The *Readings in Industrial Society* and the *Industrial and Social History of England* are available for both secondary and collegiate use.

During the preparation of the manuscript helpful suggestions have come from many persons. Among our colleagues C. W. Wright, H. G. Moulton, and Stuart Hamilton have read the entire work in manuscript form, and have given much useful counsel. C. O. Hardy, Herman Oliphant, W. H. Spencer, J. O. McKinsey, Conyers Read, H. H. Barrows, M. J. Janovsky, and Jacob Viner have all made suggestions in their special fields. To the instructors in secondary schools, in other colleges, and at the University of Chicago who have contributed the results of their experience with the book, and to publishers and other business concerns whose courtesy has added to the volume, a debt is owing. There has been a conscientious effort to give specific acknowledgment in footnotes when this was due. The material has, however, passed through so many stages that possibly some cases where acknowledgment should have been made have escaped attention. If this has occurred, general recognition of such assistance is here made. The authors alone, of course, accept the responsibility for what appears.

LEON C. MARSHALL
LEVERETT S. LYON

CHICAGO, ILLINOIS
December 25th, 1920.

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OUR ECONOMIC ORGANIZATION

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STUDY I

OUR WANTS AND THE GOODS THAT GRATIFY THEM

PURPOSES OF THIS STUDY:

1. To see why people have to work.
2. To study our wants and the goods that gratify them.

People have wants. — A teacher once asked his pupils to bring into class two lists — first, a list of things that they wanted, and second, a list of things that they wanted with which nature provided them freely, without any effort or cost. The next day, every member of the class appeared with his first list a long one. One student had put down on his list of wants clothes, candy, food, automobile, new bicycle, tickets to the opera, some dentistry work, a trip to Europe, a riding horse, and a house. The second list — things which nature provided freely — was in every case a short one. One student had put down air, water, and light. But some one in the class objected, pointing out that his wants for light were not provided for by nature, excepting part of the time and in certain places. He said that his want for light in the evening was quite as great as during the day, and called attention to the fact that the light in the room at that moment was furnished partly by electricity at considerable cost. Another student said that the same facts held true for the water supply; that water was not furnished freely. This student said that the only water he ever used came from a faucet connected with a city water main and that his father was always complaining of the taxes necessary to pay the cost of keeping up this and other forms of the city's service. The same student raised the question whether air

was always furnished freely by nature. He said he was not sure, but believed that in the school building the air was pumped in by a ventilating system which had cost a great deal of money.

Perhaps the lists which these students brought into their class could have been improved. Nevertheless they served to bring out several significant facts. One of the first facts developed in the class discussion was that mankind has an almost endless variety of wants. There seems to be literally no end to them, even taking us as we are to-day, and every broadening of our mental horizon shows us new desirable things and broadens the field of our wants.

Environment is of importance in gratifying wants. — The class discussion also brought out some very interesting facts about a word that was new to many members of the class. This was the word "environment." First the class learned that we speak of all the conditions which surround a thing as its environment. Then they saw that environment is very important to any form of life. Take, for example, a robin. Climate, plants, temperature, birds, soil, rainfall, wind, insects, and other robins are all parts of the environment of a robin and are important in determining whether it shall live. Flowers, sunshine, rain, snow, and wind are important parts of the environment of a honey bee; very important, too, are other bees which are competing for the supply of food. Many of the elements in the environment of any organism are favorable and helpful, but many are unfavorable. The Indians were unfavorable factors in the life of the pioneers. Men like Daniel Boone, Kit Carson, and Buffalo Bill, with their rifles, were in turn unfavorable to the Indians. To a fox, rabbits are a favorable part of the environment; but to a rabbit, foxes are a very unfavorable factor. A flower is favored by sunshine, gentle rain, and warmth, but dies when its environment changes to a storm of cold wind and hail. The effort to live among the unfavorable factors in an environment leads to a great fight, described in the next paragraph.

The struggle for existence. — Every animal and plant is engaged in a constant contest with all the unfavorable factors in its environment. It is a contest in which the prize is life, and defeat means death. This struggle of organisms for life against the unfavorable elements of environment is commonly called the “*struggle for existence.*” What organisms are generally victorious in this struggle? Which ones survive? Herbert Spencer, one of the great writers on this subject of the struggle for existence, has said, “those will survive that are fittest.” What does “fittest,” or most fit, mean here? It does not mean that the best-natured bear, or the most beautiful flower, the most symmetrical tree, or the most tender-hearted man will survive. It means that those which “fit” best into the existing environment, that is, which are best fitted or *adapted* to it will survive. In a cold climate, animals with long fur will be more likely to survive than thinly coated ones. Every one knows that in the far north there are found only such animals as the polar bear, the walrus, and the seal, all of which are well protected from the cold. What animals would survive in a warm climate? Clearly, those would survive whose coats were not too heavy, and whose other characteristics were adapted to the environment in which they found themselves.

The adaptation of plants and animals to their environment has come to be called a *passive adaptation*. It is called passive because plants and animals, as compared with man, do not make things over to suit themselves. They are born into an environment; if they are well enough adapted to it, or can themselves change enough to become suited to it, they survive; if not, they perish. As a matter of fact, many species of animals that formerly lived on the earth have become extinct. Geologists, digging deep in layers of the earth that were formerly on the surface, or delving in old caves, have found skeletons of great saber-toothed tigers and other strange animals and reptiles that no longer exist. These species have disappeared because some change in their environment made them losers in the struggle for existence. They were

crowded out, leaving those organisms better fitted for the conditions which at that time surrounded them.

On the other hand, mankind has reacted very differently to environment than have plants and animals. Man has changed the environment. The existence of a favorable environment is not a matter of indifference to man. By no means. The life of a pioneer shows how important it is to have a good environment. And environment is not always friendly to human beings. But man as a race has refused to die even in the presence of an unfavorable environment. He has refused to admit that there are many places on the earth where he cannot live. He has carried on and is constantly carrying on a great process of adaptation. In this process either man or nature must be changed. Has man changed? Has he done away with hunger, or the need for warmth? To some slight extent man has changed through passive adaptation, but to a greater extent than is true of any other organism in the world, man has changed his environment rather than himself. He has built houses, kept fires, and provided clothing to protect himself from cold. He has stored ice and built refrigerating plants to spare himself from heat. He has invented and built telegraphs, telephones, canals, turn-pikes, and railroads to cause distances to shrink. In brief, he has adapted nature to himself rather than himself to nature. We call this *active adaptation*.

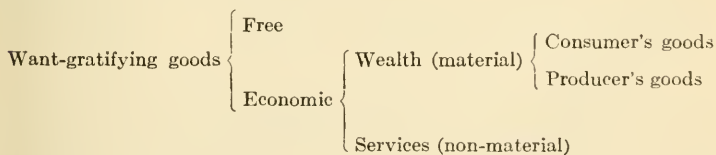
The students saw more clearly the importance of environment to all of us as they came to realize that we gratify many of our wants by using our environment. Thus, if there were no iron ore in our environment we could have no automobiles or locomotives — at least, none of the kind we now have. Without an environment including coal, warm coal fires would be impossible, and if there were no trees, all the uses of wood would be denied us.

There are free goods and economic goods. — As the students discussed their lists of wants and how these wants are gratified, it became clear that some of our needs, for example, the desire for air, are gratified, under most conditions, without effort on

our part. In other words, nature gratuitously provides the goods with which we gratify a few of our wants. These we call *free goods*. For the most part, however, we can gratify our wants only by making over nature — only by active adaptation — only by making goods available at the cost of effort. We say of such goods that they are not free goods — that they are not plentiful enough to satisfy our desires for them. They are not given freely and gratuitously by nature. As contrasted with free goods, these are called *economic goods*.

Economic goods are of two kinds — *material* and *non-material*. Material economic goods are those tangible things such as clothes, automobiles, cigars, and shoes which gratify wants. These are called *wealth*. Sometimes wealth is in such a form that it is ready to gratify our wants immediately. Such wealth is called *consumption goods*. But sometimes wealth is in a form in which we use it indirectly to gratify our wants, — in which we use it to make more economic goods. Examples of this are our store buildings, wagons, and tools. Such wealth is called *capital* or *production goods*. Non-material economic goods are called *services*. Some services gratify wants directly. This would be true of the work of an actor, a singer, or the advice of a doctor. Other services gratify wants only indirectly through producing more goods. Examples of this would be the work of a plumber or a machinist.

This discussion of kinds of goods which can be applied to our wants can perhaps be made clearer by the use of the following diagram of want-gratifying goods :



Wealth is in many forms. — The following table, which is taken from the United States Census Report, shows some of the more important forms of wealth and the value that we

place on them. It will be noticed that in this table the different forms of wealth are measured in terms of dollars. It would be possible to measure them also in terms of physical units, such as feet, tons, yards, or acres.

FORMS OF WEALTH, 1912

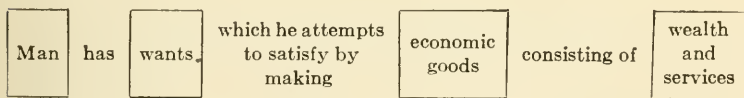
Total	\$187,739,071,000
Real property and improvements taxed	98,362,813,569
Real property and improvements exempt	12,313,519,502
Live stock	6,238,388,985
Farm implements and machinery	1,368,224,548
Manufacturing machinery, tools, and implements	6,091,151,274
Gold and silver coin and bullion	2,616,642,734
Railroads and their equipment	16,148,532,502
Street railways, etc.	
Street railways	4,596,563,292
Telegraph systems	223,252,516
Telephone systems	1,081,433,227
Pullman cars not owned by railroads	123,362,701
Shipping and canals	1,491,117,193
Irrigation enterprises	360,865,270
Privately owned water-works	290,000,000
Privately owned central electric light and power stations	2,098,613,122
All other :	
Agricultural products	5,240,019,651
Manufactured products	14,693,861,488
Imported merchandise	826,632,467
Mining products	815,552,233
Clothing and personal adornments	4,295,008,593
Furniture, carriages, and kindred property	8,463,216,222

In this table can be found examples of consumption goods, such as furniture and carriages, when these are in the possession of the consumer. There are also many examples of capital, such as machinery and railroads.

Services are as significant as wealth. — It is easy to see the significance of *wealth* in gratifying wants. Any one can see the

important part that is played in want-gratification by pork, potatoes, clothes, steel rails, putty, factories, tables, glass, cutlery, and clocks. But what of the significance of services? It is worth our while to think about this. If you think of the most interesting book you ever read, would you agree that the author gratified human wants in writing it? Did he create economic goods? If so, what kind? Think of the most enjoyable play you have ever seen. Did the author of that play create economic goods? Did the actors who produced it? Of what kind? What sort of economic goods did General Grant create? What kind of economic goods did Abraham Lincoln and Woodrow Wilson produce as Presidents? What kind were created by the inventors of the steam engine, the automobile, the aëroplane, the telephone? Think of the services of Edison as an inventor or Burbank as a horticulturist. How can one state the importance to society of the services rendered by such great teachers as Jesus, or the amount of human wants gratified by the research students who discovered the preventives for smallpox and diphtheria? Yet what these men produced was not material wealth but services.

Conclusions. — We may then draw the conclusion that mankind has wants and that nature does not gratify many of them freely. We find it necessary to provide the wealth and services that gratify our wants. We work to secure what we desire. Stated in diagrammatic form :



In spite of all that we have done to secure want-gratifying goods, we have never caught up with our desires. Man's wants seem capable of almost limitless expansion. We have many things of which our grandfathers never dreamed and we want many more. No matter how many wants we gratify, there seem always to be "other things" we want.

PROBLEMS¹

1. Make a list of twenty-five things you want. What ones of these are furnished freely by nature?

2. Draw up a list of your wants classified under the headings:

a. Wants for wealth.

b. Wants for services.

Are they confined to things which enter into commerce? Are they confined to material things? Do we always desire those things which are beneficial?

3. Do wants ever come from custom and habit or are they always guided by reason? In which class would you put men's wants for neckties? Women's wants for jewelry?

4. Have people always wanted the same things? Did George Washington want a phonograph? Name five things you want that your grandfather did not want.

5. What are some of the more unfavorable factors in the environment of a flower; of a mouse? Write a definition of the phrase, "adaptation to environment."

6. Is it fortunate for the polar bear that his fur is white? If so, explain why. Of what use to the leopard are his spots; to the tiger his stripes?

7. Consult a teacher of science, or a textbook in biology or zoölogy, for ten cases of "adaptation to environment," and report to the class.

8. Write a definition of environment.

9. What is the "struggle for existence"? Do animals ever kill others of their own species in this struggle? Does man?

10. It is said that 250,000 fishes die every year for one that lives, and that half a million starfish die every year for one that lives. What causes so many to die?

11. If two out of every hundred human beings in a modern city die every year, the death rate is thought to be high. Can you give any of the factors that make the death rate among human beings so much lower than that among plants and animals? Find out, from the Department of Health or elsewhere, the "death rate" in your community.

¹ See preface, p. vi, authors' statement in regard to problems.

12. Why is it sensible to speak of our efforts to adapt nature to us as "active adaptation"?

13. "Man ranks among the most adaptable organic beings on earth." Explain.

14. You live in a "man-made" environment. Can you explain what this means? What are some of the man-made factors in it? Is the temperature that surrounds your body provided by nature or made possible by effort? Could you live in the natural temperature of your locality?

15. If your father were planning to move your family to another town, would he think it important to consider the question of soil, rivers, and temperature in the new location? Why, or why not? What would be the considerations that would be most likely to determine his choice of a new home?

16. Would you consider your parents, teachers, and friends as important elements in your environment? Would you consider the appearance of the streets, public buildings, parks, and roadways as part of your environment? What are some of these in your town or city that you enjoy? Some that are displeasing to you? Does it seem to you that you might be different if any or all of these were different?

17. What seem to you the important elements in your environment? Can you group them into classes?

18. Be sure you know the meaning of the following terms: wealth, services, capital, consumer's goods, free goods, economic goods.

19. Give five illustrations of each of the terms used in the preceding question.

20. Can you name any business men who are engaged in the process of gratifying human wants? Can you name any professional men who are thus engaged?

21. Name five kinds of business men who aid in producing wealth; five who produce services.

22. The doctor, the preacher, the surgeon, the newspaper man, the teacher, and the opera singer are doing the same thing. Is this so? If so, what thing?

23. Are the following wealth: a pie, shoes, cigars, a hoe, whisky, a street roller, your desk? Which are capital?

24. Of the men who live in your block, how many spend most of their time in work to gratify other people's wants?

25. About what part of all men's time is spent in working to gratify people's wants?

26. Give a list of the courses in your school that might aid people in learning to make nature over to gratify their wants.

27. Make an outline of the main points in this lesson. Be sure your outline contains a carefully worded definition of every new term in the lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: Selections 1, 2, 3, 103, 320.

Bureau of Education, *Lessons in Community and National Life*:

Series A, Lesson A-2, Lyon, "The Western Pioneer."

STUDY II

OUR SOCIAL RESOURCES AND OUR ECONOMIC ORGANIZATION

PURPOSES OF THIS STUDY :

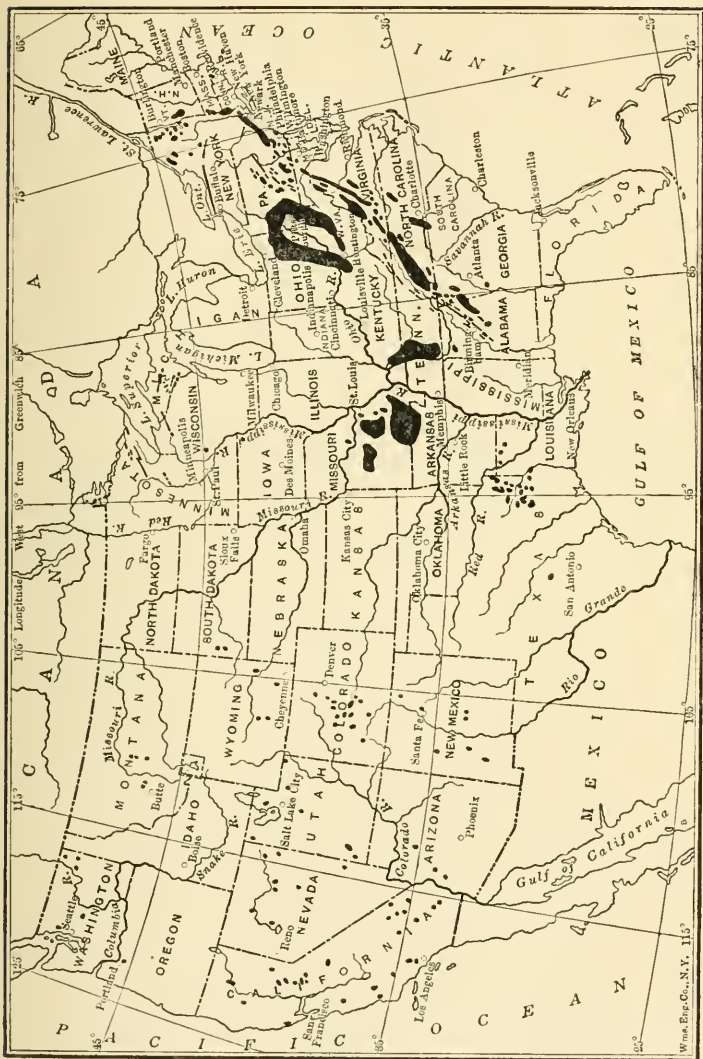
1. To understand what means are available in the process of active adaptation.
2. To sketch how all these means are combined in an economic organization.

We have seen that very few of our wants are gratified freely by nature. We must work to make nature over. We must engage in active adaptation. Just what do we use in this process of active adaptation?

Natural resources are used in adaptation. — Perhaps the most important of the means or materials or resources which are available in active adaptation are those furnished by nature. We sometimes call them natural resources. One of these is soil. In nearly every inhabited country there is soil which is sufficiently fertile to raise food supplies. Europe, North America, South America, Africa, Asia, and Australia all have vast stretches of fertile soil. It is not difficult to see how important this is as a resource in gratifying our wants. Other natural resources are equally important. Iron, petroleum, coal, water power, the force of gravity, rainfall, and sunshine must all be included among the natural physical resources which we can use in making want-gratifying goods. Sometimes economists use the term "land" to cover all these resources.

One writer emphasizes the importance of natural resources thus :

"Examine them as we may, we find that every want of man, whether Eskimo or banker, is a desire for one of these six classes of goods:



Courtesy United States Geological Survey

DISTRIBUTION OF IRON ORE IN THE UNITED STATES

Wm. Eng. Co., N.Y. 115°

food, clothes, house or shelter, fuel, luxuries, and tools and materials of industry which enable him to produce and handle the others. So nearly universal are these wants that practically all men have all six classes of goods. Even savages have luxuries in the form of toys, ornaments, and musical instruments.

“All these materials for a living come directly or indirectly out of the soil or crust of the earth. The man in a ship at sea or in a steel sky-scraper in a modern city gets his sustenance from the soil just as surely as does the farmer who takes potatoes from the furrow. Each particular method by which a man gets some useful commodity leads to an industry often of world-wide distribution. To understand the way the human race turns the earth into its home, we have but to study the various industries by which groups of men achieve their living.

“While ultimately depending upon the contents of the earth’s crust, most of our living comes indirectly through the intermediate stages of plant and animal life, the crust itself supplying directly but a small part of our wants. In and upon the earth is the indispensable water, without which we would promptly perish. While the more solid substances of the earth’s crust are also directly available and of great value, as salt, building stones, and metals, we depend chiefly upon vegetation for our support. The plants grow from the soil. We eat them or clothe ourselves with their fibers, cut them into pieces, shape them into tools, and build our houses and barns, extract their juices and dig their roots for drugs and medicines. We burn them for fuel, shape them into articles of luxury, and thus make them help in the supply of some of the wants of each of the six classes. The animals in turn eat the plants and each other, and furnish us their meat and milk as nourishment; their wool and furs become our clothing, their tougher hides make our shoe leather, the tents of the nomad, and the belts of the engine wheel, while the cultural services are hinted by the soft leather bindings of our choicest books.”¹

Labor power is useful in active adaptation. — A second means or resource which is of great consequence is the labor power of all of us. Labor has been defined in various ways, most of which mean much the same thing. It has been defined as “all wealth-creating effort.” One writer defines labor by saying

¹ J. Russell Smith, *Industrial and Commercial Geography*, Ch. I, p. 3.

“ Labor is the application of human faculties to the production of wealth.”¹ Another writer says: “ Labor is the voluntary exertion of bodily or mental faculties for the purpose of production.”² These definitions all mean much the same thing and we may consider labor simply as mental or physical effort which is devoted to the creation of wealth or services.

If we think of society as a whole, there is a great deal of labor power at its command. Nearly all of us can do some form of work, and when we think of the work that all of us together can do in attacking natural resources and making them over into want-gratifying goods, we realize how important a resource is our total amount of labor power.

Of course the labor power of different individuals varies greatly — some can do almost any kind of work and some can do much more than others. The following are among the qualities determining the amount of labor power which one individual possesses: (1) health, (2) physical strength and endurance, (3) intelligence, (4) judgment, (5) ambition, (6) energy, (7) perseverance, (8) imagination.³

Capital aids in active adaptation. — Fortunately, we are not compelled to attempt to turn natural resources into want-gratifying goods with our bare hands. Man has accumulated a great many tools, machines, and implements which we can use in this work. Just as a pioneer had his team, his plow, and other simple tools, so now there is available a tremendous stock of “ implements of production.” Railroads, factories, warehouses, and stores are all implements which we use in our task of gratifying wants. All of these implements which we have made in the past and now use to help us produce more wealth are called *capital goods* or *production goods*, or *producer's goods*. They are goods which we have produced with past effort and which we do not consume in gratifying wants directly, but use to help produce other goods. Steamboats, plows, buzz saws, hoes, wheel barrows, automobile trucks, and street car

¹ A. S. Johnson, *Introduction to Economics*, Ch. X.

² N. W. Senior, *Political Economy*.

³ Compare Seager, *Principles of Economics*, Ch. IX.

lines are all examples of capital. Capital is now used in the production of almost everything that we consume.

Acquired knowledge helps in our active adaptation. — If a pioneer who had settled in the agricultural area of our great West had not learned to farm before making his settlement, he would have had a hard time of it indeed. In point of fact, these settlers knew how to operate farms and were able to do rude carpenter and mechanical work. This acquired knowledge was for them a very important asset. Their acquired knowledge was, however, no more important to them than is ours to us. For example, when we wish to build a factory, it is not necessary to spend effort and material in experimenting and learning how such a building can be constructed. We have, in the past, learned a great deal about the best way to build factories and we can now call upon this acquired knowledge at a moment's notice. The same fact holds true if we wish to construct a railroad, run an engine, or open and operate a mine. We do not have to learn how to do these things from the beginning, and this fact enables us to secure want-gratifying goods more easily.

It is difficult to overestimate the importance of all this acquired knowledge. Think, for example, of our knowledge of arithmetic. By means of this science we are able to calculate the least expensive methods in producing goods. Think of language. How much more difficult would it be to carry on our work of producing goods if we had not acquired from the past a language in which we can talk to one another so that we are understood! Of equal importance is the fact that we have learned to convey our ideas to one another through writing. Suppose an Englishman, a Spaniard, an Eskimo, and a Turk, none of whom knew the language of any of the others, should try to coöperate in building a house or running a factory. How their work would be handicapped by the fact that they could neither speak nor write to one another!

In addition to these computing and communicating aids a great realm of scientific knowledge covering physics, chemistry,

biology, the earth sciences, is at our disposal. We can perhaps best appreciate the significance of our acquired knowledge if we try to picture our sorry plight if it were lacking.

Society's resources are somewhat like those of a factory owner. — We can better understand the use of society's resources in the active adaptation struggle if we compare the situation with that of a factory manager. The owner of a factory walking through his plant might say, "These raw materials in my storeroom form one of the assets which I can use in making the products I desire. These machines are another of my assets. The men who work for me are the labor power. These workmen have knowledge of their trades and I myself have knowledge of the operation of this business. All together these raw materials, this capital, this labor, and our knowledge are the means or resources or materials from which I can manufacture finished products." In the same way natural resources, labor power, capital goods, and acquired knowledge are resources which man uses in his efforts to gratify his wants.

It should be noted that these resources are by no means unlimited. It is obvious that there is a limited amount of good soil, coal, iron ore, and timber in the world. There is also only a limited amount of labor power and capital. Our acquired knowledge is limited — sadly limited we sometimes think. These facts may make it difficult for us to secure everything we want, especially since our wants are so numerous.

An economic organization is useful. — How a group of people might organize for the task of producing want-gratifying goods from its social resources may be shown by a simple illustration.

Suppose that all the people in our class should be shipwrecked on an island and knew that there was no chance of getting off for twenty years. No one else is living or has ever lived on this island and we are dependent on ourselves. The island is fertile, has good climate, plenty of rainfall, all sorts of natural resources. From the wreck we have saved some tools and

utensils. We have a certain amount of acquired knowledge. Under such conditions how would we undertake the task of gratifying wants?

There are, of course, several ways in which we might do it.

1. Each person might go apart from the others and set about the task alone. He would attempt to find or produce all of the things that he wanted to eat and wear or use in any other way to gratify his wants. If it were done in this way, no person would be coöperating with any of the others. Each would be in somewhat the same situation as a family on the frontier — *self-dependent* and *self-sufficing*.

2. On the other hand, a council might be called and it might be agreed that all should coöperate in producing economic goods. The form of coöperation might be such that all would work at every job. All would work together in hunting, then in fishing, and then in helping to raise crops.

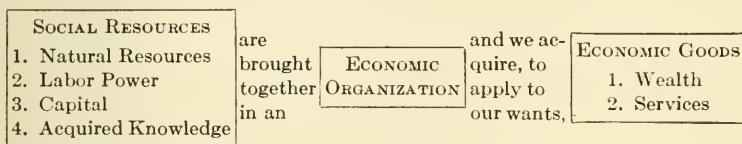
3. A different form of coöperation might be decided upon. A central committee might be appointed to determine what *specialized* work each one should do. This committee might have power to require certain ones to fish, others to hunt, others to work in the fields. All the finished products might be turned into a common fund or reservoir. A common dining-room might take care of the wants of all for food. Clothes might be distributed from the central storehouse. The governing committee would be required to be careful to have enough on hand to supply the necessities before luxuries were considered. Such a community would be called a communistic society. It would be very much like the one which was used at one time by the colonists who settled in Virginia. All of the activities of the members of the colony were under the control of authorities. "Whatever the settlers produced went to the common stock, while they were fed and clothed from the company's store house."¹

4. A fourth plan might be to allow each person to produce anything he thought was needed and to trade or bar-

¹ Channing, *History of the United States*, Vol. I, p. 183.

ter with the others for things which they had produced. Under such an arrangement, the person who fished might barter fish for game, the hunter might barter game for fish and grain, while the ones who had raised crops would be anxious to exchange their crops for meat and fish. Would not such a plan be somewhat like the one we use at present?

These are only a few of the possible forms or methods of economic organization. No matter what form may be in use, the situation may be illustrated by the following diagram :



The economic organization or economic system which is used in our society to-day might very sensibly be spoken of as our want-gratifying machine. No one could draw a picture of this machine. If we tried to name its parts, we should no doubt think of laws, banks, factories, labor unions, contracts, schools, transportation systems, private property, competition, employers' associations, chambers of commerce, specialization, insurance companies, inheritance, wages, interest, profits, and many other institutions. We need not be surprised if the outlines of this want-gratifying machine are not very clear in our minds at this time. Throughout this entire book we shall be studying how this want-gratifying machine, our economic organization, is put together, what its various parts are, what tasks or functions it performs.

Is our economic organization orderly or chaotic? — Some persons believe that there is very little system and plan to our economic organization. They can see nothing in it but planlessness and conflict. These persons sometimes talk of our whole system as a wild scramble in which every one is trying to get the best of every one else without other thought or consideration. They declare that we have nothing but

irregularity, waste, and a hectic struggle for existence. On the other hand, a larger number of observers point out that there is a great deal of plan, method, and system in our economic organization. One writer says that if we imagine a committee on a distant planet looking at the world with a gigantic telescope and reporting what they saw they would not report our efforts to get a living as a wild, disordered rout. "They would be much more likely to report that they had seen a very orderly people coöperating on the whole with a wonderful absence of friction, that they had seen them come out of their homes in the morning in successive batches and wend their way by all sorts of means of locomotion to innumerable different kinds of work, all of which seemed to fit somehow into each other so that as a whole the vast population seemed to get fed, clothed, and sheltered. They would not, of course, vouch for the perfection of the arrangements. They would see that there were occasional irregularities and hitches. They might see now and then too many vehicles in one street, too many passengers trying to travel by one train or tramcar. They might be able to see that some had too much — more than they seemed to know how to dispose of without hurting themselves and others — while some evidently had too little for healthy and happy existence. But in spite of these defects, they would report, I think, that on the whole the machinery, whatever its exact nature, seemed to do its work fairly effectively." ¹

Our economic organization is ever changing. — The economic organization which exists to-day is very different from that which existed in the time of our great-grandfathers, or even of our grandfathers or fathers. In other words, economic organization is a dynamic and not a static thing. It is changing before our very eyes, but the changes are not always easy to see. It has grown to be a very complicated organization. Indeed it is so complicated that it is difficult to see it clearly and understand it thoroughly unless we go back in history and see it in its

¹ Edwin Cannan, *Wealth*, pp. 72-76.

simpler form and notice some of the more important changes which it has undergone in the years past. This will justify us in devoting the next few studies to the past.

PROBLEMS

1. The number of wants that the people of a country will have satisfied depends on the natural resources of the country that they inhabit. Is this statement true?

2. Is the following statement more true than No. 1? The number of wants that a people will have satisfied depends on the natural resources of their country and their own ability to turn these natural resources into want-satisfying goods.

3. Do we raise reindeer or camels in the United States? If not, why not?

4. "The larger the geographic base, the greater variety of climate and resources that it offers, the more varied and secure will become the connections of a people with the land on which they live." Explain this statement. Give illustrations.

5. It is a so-called "law" of the location of cities, that cities grow at points of break in transportation; that is, where goods or people are transferred. Can you see anything tending to prove this law in the growth of such commercial cities as New York, Chicago, St. Louis, Kansas City, San Francisco?

6. If, in your town, the street cars stopped before crossing the street, on which of the four corners, other things being equal, would you prefer to locate a drug store or a news stand? Is your town or city at a break in a transportation route? Are any important stores in your town at breaks in transportation?

7. Can you give examples of an industry peculiarly dependent upon gravitation? Of one dependent upon rain, wind, sunshine, tide, moisture, temperature, qualities of soil?

8. Do you know any regions where the natural resources are so limited that people cannot readily get the means of living? For the people of a certain region to have a good living, is it necessary for the natural resources of that very region to supply them with all the things they use?

9. Can you cite specific ways in which natural conditions have affected the industry of Michigan, Greenland, Egypt, Central America?

10. "The man in a ship at sea or in a steel skyscraper in a modern city gets his sustenance from the soil just as surely as does the farmer who takes potatoes from the furrow." Is this statement true?

11. Draw up a definition of labor as that word is used in this lesson. Cite ten cases of primarily physical labor. Ten cases primarily mental.

12. Would the coming of immigrants increase the amount of labor power of a community? What are some other ways in which the amount of labor power of a community may be increased?

13. Is ability to think a mental quality? Can you name other mental qualities? Who looks after the mental qualities of people? Is honesty a moral quality? Who looks after the moral qualities of people?

14. Can you see any reasons why it is worth while for our states to provide education at public expense? What are some of the courses in your school especially helpful in training students to do efficient work after they leave school?

15. Look up the word "caste." Would such a social condition as a caste system promote efficiency among workers? Would a condition of great general poverty? Cite some social conditions in the United States which promote efficiency in its workers. Some which lower efficiency.

16. Can you show any way in which individual efficiency might be increased or lowered by public parks? Bathing beaches? Churches?

17. Can you determine which is more important, natural resources or labor? Moral qualities or mental qualities? Individual health or social conditions?

18. Make a list of ten kinds of capital other than those mentioned. What is another name for capital?

19. Make an estimate of the comparative efficiency of a man picking apples without tools and of one equipped with such simple tools as a pail and a ladder. Give five other illustrations of the great usefulness of capital in production of consumable wealth.

20. Make a list of things that are clearly capital. Of those clearly not capital.

21. Give five illustrations other than those in the text, of knowledge that society has acquired in the past which it can use in its work of gratifying wants.

22. If each generation as it died carried with it all the knowledge that it had acquired, do you think our task of gratifying wants would be more difficult? Is a school an institution that helps us to transmit acquired knowledge from generation to generation? Can you name any other devices that aid in retaining society's supply of acquired knowledge?

23. Do many of us secure everything we want? Why or why not?

24. What are the more important factors in determining whether mankind will have an easy or a difficult "struggle with nature"?

25. Do people of this country gratify their wants from the resources of this country or from the resources of the world?

26. Will a pioneer be in a better position to gratify the wants of his family if his family consists of small children? Will he be better off, perhaps, if these children are all strong, well-grown boys? Does it seem to you that the size of the population, as compared with the amount of its resources, has anything to do with the number of wants that we may be able to gratify? Will the composition of the population, that is, the proportion of men, women, and children, make a difference?

27. Set down in writing several different ways that we might organize to gratify our wants if we were shipwrecked on a fertile island. Would we still have the same basic problem of gratifying our wants, no matter what method we used?

28. Did the American Indians, who lived here before the white man came, have an economic organization? Was it more simple or more complex than ours? Was there an economic organization at the time of Abraham?

29. What is the purpose of an economic organization, no matter what methods constitute it?

30. Is the clothing supply in your town fairly regular? Is this an example of regularity or chaos in our want-gratifying machine? Give five other illustrations of order in our economic organization.

31. "Our economic organization is one of system and structure. We might well speak of its parts and their workings as the structure

and functioning of industrial society." Does this seem to you a sensible statement?

32. If we think of our economic organization as a want-gratifying machine, we may think of factories, laws, railroads, labor unions, schools, banks, and other forms of business activity as wheels or parts of the machine. Have all these parts always been the same? Give five illustrations of "wheels" in the modern want-gratifying machine which were not there at the time of Noah.

33. When a man or boy hunts for a job is he trying to find his place in the economic organization?

34. If a boy wants to play half-back on the football team, does he have to know half-back, or football, or both? If he wants to succeed in some line of business or professional work is there any reason to believe his chances will be better if he understands the economic organization as a whole, as well as the one line of business in which he is working?

35. Make an outline of the main points in this lesson. Be sure your outline contains a carefully worded definition of every new term used in the lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 3-9, and Selections 11, 12, 13, 14, 4, 7, 8, 9, 10.

Bureau of Education, *Lessons in Community and National Life*:

Series A, Lesson A-4, Goode, "What Nature Has Done for a Typical City."

Lesson A-5, Reticker, "The Human Resources of a Community."

Lesson A-6, Marshall, "Capital."

Lesson A-7, Lyon, "Organization."

STUDY III

THE FUNCTIONING STRUCTURE OF MEDIEVAL INDUSTRIAL SOCIETY

A. THE SELF-SUFFICING MEDIEVAL ENGLISH MANOR

PURPOSES OF THIS STUDY :

1. To see how wants were gratified when conditions were simpler than they are now.
2. To make some comparisons between early and modern methods.

The plan of the next six chapters. — In our introductory studies we saw that nature does not provide us freely with many of the things we use to gratify our wants. As a result of this, man engages in active adaptation — he produces wealth and services. Our present method of producing these desired economic goods by using natural resources, labor, acquired knowledge, and capital, is not easy to understand because our economic organization has become very complex and involved. A few centuries ago it was comparatively simple. Since our present organization is nothing more than the old organization changed, added to, and grown larger, we can get a great deal of help in understanding our present want-gratifying machine by examining its structure in the days of its simpler form.

We could find in the economic history of almost any country a situation that would be useful for our purposes. But we shall examine, in preference to others, the want-gratifying organization of medieval England. There are several reasons why this is a good period for us to study and why England is a good country to use in this connection. To begin with, the methods of gratifying wants in medieval England were sufficiently simple to serve our purposes well. Furthermore, at

that time many of the factors which are most important to us to-day were just in the process of emerging. We can accordingly see them in their beginnings. Finally, in addition to these reasons for the time chosen for study, we center our attention on England rather than on any other country because many of our methods, habits, customs, and institutions have been taken from that country. Our economic organization is in many respects a sort of descendant of that of the mother country.

In our examination of the structure of medieval English industrial society we shall not attempt to see everything at once. We shall make our work easier and also more useful by considering first the organization for agriculture, second the organization of the town for manufacturing, third the organization for commerce, and finally some of the changes which resulted in medieval organization assuming the present form. It will not be a study of medieval history. We shall be interested in the *facts* of medieval society only to the extent that the facts are of service in making clear to us the structure, the organization, the functioning of that society. We shall be particularly interested in the structures, the organizations, and the institutions which were the germs of present structures, organizations, and institutions; or, on the other hand, in those which, by contrast, will serve as a foil better to display present features.

The vill or manor and its layout. — A large part, perhaps nine tenths, of the people of medieval England lived in the country and got their living from working the land. A view of the country, however, would have shown an entirely different picture from that presented by a glimpse of a rural landscape to-day. To-day we see scattered farm houses surrounded by farms of varying sizes, an occasional little town at some favorable point, such as where a country road crosses a railroad. In medieval England one would have seen a number of large, poorly kept estates, made up partly of cultivated fields and partly of waste land. Commonly they did not adjoin, but were separated by many miles of rough, unused, uninhabited land, open stretches of heath, or dense forest. There were no scat-

tered farm houses even on the estates. The houses of all the inhabitants were grouped together in a little village, or vill as it was called, containing on the average about one hundred and fifty persons.

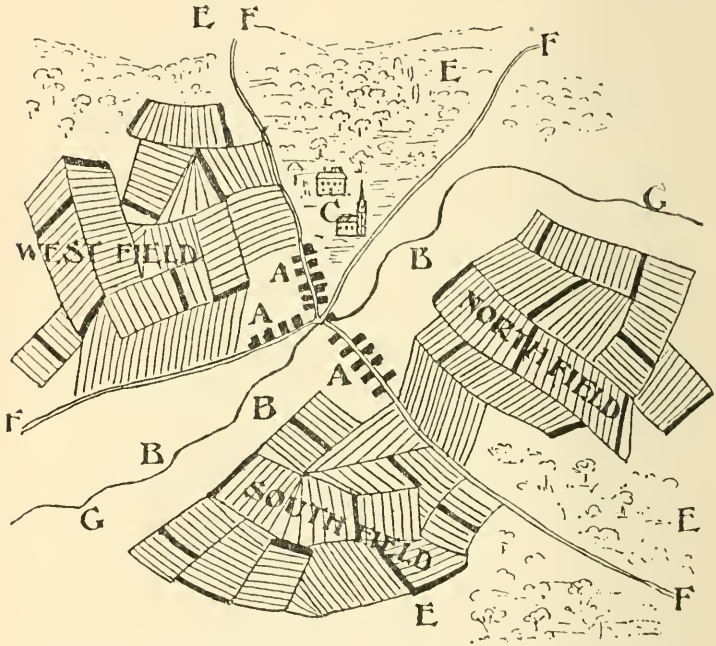
This vill was very different from the little country town of to-day. It was entirely an agricultural community. As regards its buildings, two were likely to be somewhat prominent: the manor house of the lord who held the entire estate from some overlord—perhaps from the king; and the church that was sometimes used for a hall or a market-place. Certain other buildings might or might not be different from the rest. Generally there was a mill on the stream which ran through the vill, and sometimes there was to be found the shop of a blacksmith or the house of a weaver or carpenter. But there was nothing like our modern stores and shopkeepers. Every vill would vary somewhat in its plan of layout and its buildings, but the following description will help us picture one.

“The houses of these villages were poor and dirty, not always made of stone, and never (till the fifteenth century) made of brick, but built of posts wattled and plastered with clay or mud, with an upper story of poles reached by a ladder. The articles of furniture would be very coarse and few, being necessarily of home manufacture; a few rafters or poles overhead, a bacon-rack, and agricultural tools being the most conspicuous objects. Chimneys were unknown, except in the manor-houses, and so too were windows, and the floor was of bare earth. Outside the door was the ‘mixin,’ a collection of every kind of manure and refuse, which must have rendered the village street alike un-savoury, unsightly, and unwholesome.”¹

Open field system used. — The cultivated lands of the manor lay spread about the village in broad open fields. This is called the open field system. In some parts of England there was one open field, in others two open fields, in still others three or more. A description of the three-field system will serve our purposes. Under this plan the entire area of cultivated land was divided into three large fields. During each year one of

¹ Adapted from H. de B. Gibbins, *Industry in England*, pp. 80-85.

the three fields would lie fallow, resting. Another one would be sown to some crop which would be planted in the fall and harvested the following summer. The third field would be planted in



From Henry Allsop's *An Introduction to English Industrial History*, published by G. Bell and Sons, Ltd.

A DIAGRAM OF A MANOR

Suggestion of village with three fields divided into furlongs and acres; the 30 black acres represent one virgate.

- | | |
|--------------------------|------------------------------|
| A. A. Tenants' messuages | E. E. Wood and rough pasture |
| B. B. Natural meadow | F. F. Roads |
| C. Hall and church | G. G. Stream |

the spring and reaped in the autumn. Each succeeding year the fields were rotated with respect to the use made of them. The variety of crops was small and the yield was light compared with that which we secure nowadays. Oats, wheat, rye, barley, and peas were the crops which historians mention most frequently.

Each of these fields was divided into long narrow strips a furrow-long (furrow-long) or forty rods in length, and wide enough to make the area of the strip a quarter acre, a half acre, or perhaps more frequently an acre. These strips lay side by side, separated by what was called a *balk*. This might be a narrow width of unplowed land, a division marked by grass or stones or two furrows thrown together. The strips of one field were not always parallel. One group of strips might be at a sharp angle to another group. The way in which the land lay or was cut by streams or hills had much to do with the way in which these groups of strips were related to each other. Often, however, there was apparently no reason for the way in which the strips were laid out other than the custom of the manor.

Tenants held land in scattered strips. — Now in all the groups of strips lying in several fields, where was the holding of any one tenant? Not in any one place. It was distributed over all the fields and his strips were not side by side. In the open fields of the manor divided in this way, how could a tenant tell what he held and what he did not hold? Undoubtedly there was difficulty at times. But custom, running from time immemorial, was the guide, and gave rights and title to the various tenants. The holding of a villain was likely to be about thirty strips or acres, and was called a *virgate*. Sometimes, however, there were smaller holdings called half virgates, and quarter virgates.

Scattered among all the strips belonging to the tenants were some belonging to the lord, and these taken together with a separate piece of land which he might have near the manor house, constituted the *demesne*. Sometimes a part of the land of the lord or of some tenant would be inclosed by a hedge or fence. This was called a *close*.

Besides the cultivated fields, there was to be found on the manor the *common pasture* and the *woodland*. Often all the tenants could make use of the common pasture for a limited number of cattle. In the woods the tenant would be likely to have the right to pick up firewood and perhaps to pasture swine.

On some manors there was also *meadow land* where, for extra payments, the tenant could secure the right to a supply of hay. Also, there was the *waste*. This was rough, unplowed land which, usually for no additional payments, furnished to the tenants turf and brush for fuel and perhaps some rough fodder for cattle.

Tenant classes existed. — Not all of the people who lived on the manor and made a living from the land were of the same social class. There was, for instance, the lord of the manor, one of the king's chief fighting men, whose home when he was on the vill was the manor house. Sometimes the lord controlled several manors and divided his time among them. When he was absent, the manor house was likely to be occupied by a representative or officer whom he left in charge. A bailiff and a reeve, officials of the lord, took direct charge of the work of the people of the vill and were charged with responsibility if the lord was away.

On practically every manor there was a small group of people called *free tenants*. They held some land from the lord for which they usually paid a small amount of money at stated times. Generally, they also gave the lord of the manor some definite services for the use of this land. These people were free in that they could leave the manor as they liked, and were in no sense bound to the soil.

The most numerous class of tenants were those called *villains*. They were the holders of the *virgates* described above. They held this land of the lord and were related to it in a way somewhat different from anything we know to-day. Although the medieval villain had property rights in land and in personal property, he did not have as many rights as the modern farmer. The villain did not own his land in the sense that he had a right to sell it, nor did he rent it in the sense in which we use the term. He had a right to use it and to pass it on to his heirs. He had the right to the cottage in which he lived and usually had a claim on some domestic animals and other personal property. But if the villain had rights to the land, the land in a

certain sense had rights to the villain. He was *bound to the soil*. He was forbidden to leave the manor without the consent of the lord; if he did so, he might be brought back and punished. He was only half free.

For the enforcements of his rights the villain could usually appeal to a court called the manorial court in which the lord of the manor or his representative presided, and which was usually the final authority. If the complaint were a matter of injury to life or limb, he might turn to the king's court instead. In the manorial court the villain was likely to find security by pleading his right by custom. If he could plead that it was the custom to do things in a certain way and if he could show that this had been the custom from time immemorial, he was more than likely to win his case, although his chances were not of the best in case his complaint was against the lord.

It is apparent that there were no books of written or statute law to which the villain could turn to ascertain his rights. He had the rights from established custom. This same established custom dictated the duties and obligations of the villain. These were chiefly of three kinds: (*a*) week-work, which was service for a certain number of days each week on the demesne, the land of the lord, (*b*) boon-work, which was special service on the land of his lord at special seasons of the year, such as harvest time, (*c*) payment, not in money but in kind; that is, in products that were raised on his land.

Another class of tenants on the manor were the *cotters*. The property rights of the cotters were more limited than those of the villains. As their name implies, they held very little except the cottage with perhaps sometimes a very small holding of land. The cotters, frequently finding it difficult to make a living from the small plots of land which they held, formed a class which even in medieval times must have been ready to sell their services to other classes on the manor. They are interesting and significant because we find that later, when manorial conditions changed, they were a class from which *wage*

laborers, either for farms or for shops in the towns, could be readily recruited.

An idea of the relative numbers of the various classes in medieval England can be secured from the Domesday Survey of 1086 (a sort of "census") made by William the Conqueror. The number ran thus:¹

Gentry and clergy, made up of tenants in chief, under tenants	9,300
Free-holder and yeoman, made up of freemen and soemen	35,000
Half-free or unfree, made up of villains, cotters, and bordars	259,000
Slaves	25,000

Farming methods used. — Typically no one of these men on the manor worked his land alone. It was a system of what



MEDIEVAL PLOWING

Wherein does this differ from a plowing scene on a modern middle-western farm?

might be called coöperative farming. Even when the land was worked individually it had to be thrown open for common pasture after the crop had been harvested. Under such a system, there was not much opportunity for a villain to experiment with some new crop. He had to fit in with the work of the others. For example, he could not plant a crop which would not be ready for harvesting for months after the general harvest. Such a system did not encourage the individual initiative and enterprise which is so characteristic of our agriculture to-day.

Self-sufficiency of the vill. — A large part of the produce that was harvested on the manor was consumed by the people

¹ James H. Tufts, *The Real Business of Living*, p. 42.

who raised it. The manor produced primarily for *consumption*; for its own *subsistence*. In some cases, however, there must have been a surplus which was sold. During this medieval period, and especially during the latter part of it, there were towns in England. It seems reasonable to believe that for part of their supplies, at least, these towns had to rely upon what the villas had to sell. One historian of this period even states that, toward the end of the middle ages, corn and cattle in large quantities were regularly sent to markets by the lords and bailiffs of manors. There were many years, however, when there was no surplus and when it was difficult to find enough to supply the inhabitants of the manor itself. Rain-fall was not certain, land was none too fertile, and it was possible that attacks upon the manor might despoil the crops or keep the villains from the fields.

“Imports” to the manor were hardly more numerous than “exports” from it. Some things, however, the manor needed that it could not produce. Perhaps of most importance was salt. Salted meat was an important part of the food of the manorial population during several months of the year and salt was therefore a necessity. An occasional millstone was also needed, and it is said that the better ones of these were brought from France with great expense and labor. Tar was also in demand as a medicine for sheep, and this could be had at the towns to which it was brought from Norway or other countries of the north. Iron, too, was bought at the fairs and markets, for use in making and repairing tools and weapons.

It is evident that where trade was so limited there would be comparatively little need for money. Some need there seems to have been, however. Certain payments, especially of the freemen, were made in money and in some cases money might be required of other tenants. The cotters, who apparently sold their labor to other tenants, could have been hired for money, and it was generally possible for a villain, if he could accumulate sufficient money, to buy freedom from his customary payments and duties.

When we remember that the vill was frequently separated from its nearest neighbors by many miles and by many dangers, and that neighbors were more often hostile than friendly, it becomes clear that its people would grow to depend very much on themselves. That is, they would have a tendency to become, compared with local groups to-day, *independent* and *self-sufficing*. All of their interests would be at home. They would know and care little about what went on in the outside world, and if their local rainfall was sufficient and local crops were good, they would probably have little interest or little thought for what might happen elsewhere. There would be many reasons for the vill to become, as it has often been called, a little world in itself.

Economic organization of the vill. — An economic organization, or for that matter any other organization, comes into being to meet a given need. Did the vill meet the requirements of the day? Did it provide a means of subsistence and defense? While it produced but little food compared with what we should expect such a great amount of land to produce to-day, it at least provided the bare necessities of life, especially in favorable seasons. Its people, living close together, were reasonably well prepared for defense against both man and beast. Since the manor house was often a well-built fort, they could find protection there in case of extreme need. If the lord of the manor called those of his men who owed him military service to follow him, either in a foreign war, or in a raid upon some other vill, the system of coöperative agriculture made it certain that all the land would get some attention from those who were left behind, so that no one would return to find his holding entirely neglected. Did the vill provide for the government of its members? We have seen such provision in the position of the lord and in the work of his courts. The control of the manor was quite largely the control of custom. Things were done as they had always been done. Social habits were an authority that was not to be questioned.

We should not expect the vill organization to be free from

difficulties, measured by present standards. In terms of our standards, implements were crude, few crops were known, farm animals were poor and under-sized, agricultural methods were unproductive, and the force of custom not conducive to rapid progress. Nevertheless, measured by the standards of its own day, the vill was a reasonably satisfactory social institution.

Some generalizations. — Now that we have seen something of the manor — its method of operations, its scheme of organization, and the people who lived upon it, we are ready to make some generalizations. Work through the following statements which bring out some of the prominent characteristics of the manorial system :

1. "No intermediaries existed in the manor between producers and consumers." Explain this. Compare it with present conditions. Did the villain talk about the middleman?

2. "The members of one group must for the most part produce their own tools. They could not rely on specialists." Compare this with present conditions.

3. "The villain was not a wage earner." What does this mean? Have we wage earners now? Try to state under just what conditions one can be called a wage earner.

4. "On the manor, production was for *consumption* or for *stores* for use." What is it for to-day?

5. "The value of anything on the manor would have been measured by value *in use*, not value *in exchange*." In which is it measured to-day? In which of the two ways do we measure the value of things we have — say a ton of hay, a carload of wheat, a horse, our skill in surgery, preaching, or laying bricks?

6. "The manor was a producing and a consuming community in one." Is this true? Is this statement true of local communities such as your city nowadays? Is it true of a country town?

7. "On the manor payment was for the most part payment *in kind*." Explain this. In what is it to-day?

8. "Change and progress on the manor were hindered by lack of individual control of farming methods." Explain. Who or what did control the methods? Why should this make any difference?

9. "The manorial system has been characterized by the following terms: 'joint husbandry,' 'carried on in common,' 'coöperative agriculture,' 'local,' 'self-sufficing,' 'independent.'" Do you think these terms are to the point?

SOME COMPARISONS BETWEEN THE VILL AND MODERN CONDITIONS
IN AMERICAN AGRICULTURE

MANOR OR VILL

AMERICAN AGRICULTURE

Situation of agriculturists

Living in a vill.

Scattered on separate farms.

Classes of people

Lords, villains, freemen, cotters.

Land-owning or renting farmers.

Management

Control by custom.

Each individual largely free to do
as he pleases with the land.

Methods

Customary coöperative cultivation.

Experiment, crop rotation, planning ahead.

Relations to other people

Self-sufficient, isolated.

Dependent, inter-related.

System of land tenure

Customary holdings in land with
villains bound to land.

Fee simple or lease by definite
contract.

Purpose of production

For consumption — agriculture
for subsistence.

For market — commercial agriculture.

Each side of the above comparison represents certain characteristics of the two different forms of economic organization. Work through the comparisons, making certain that you know the meaning of every term used.

PROBLEMS

1. Why do we begin this work with an historical study? Why do we begin at 1100-1300? Why not at a period forty years ago?

2. Why use England as a type case? Why not Japan? Russia? Portugal? Spain? Italy? Why not the United States a hundred years ago?

3. About nine tenths of the economic life of medieval times was in the manor and about one tenth in towns. How does this compare with the situation to-day?

4. How is the population of the United States to-day divided between city and country? (See census reports.¹)

5. What is the chief factor in determining for the majority of the people of to-day whether they shall live in the country or the city? What was it at the time of the manor?

6. What facts show you that the public health of the vill was not cared for adequately as judged by modern standards? Find out what agencies look after public health affairs in your community.

7. How did the lord of the vill get his income? Would he become extremely rich from this income? Why, or why not? How would his chances of accumulating great wealth compare with those of the proprietor of an equal amount of land to-day?

8. Were the villains "wage earners" as we use that term to-day? Explain. What advantages or disadvantages did the villains of that time have as compared with the unskilled workman of to-day?

9. Did they know of money in the vill? Were payments for the most part made in money? Did the people think much in terms of money? Do you think we could get along without money now?

10. Were there any "retired farmers" or "retired villains" living on their money? If not, why not?

11. Explain just what you mean when you say a retired farmer or business man of to-day is living "on his money."

12. When practically all payments are made in money and people think of values largely in terms of money, the economic organization is said to be on a *money basis*. Another way of saying this is to say

¹ Note to teachers: It may be expedient to assign one pupil only to questions (such as this) which involve investigation, and to require a report.

that it is a *money economy*. Was it a money economy at the time of the vill? Is it now?

13. Did the villains produce for gain? Explain. If not, what for? Does the farmer of to-day produce for gain? Does the gain spirit seem to you a strong driving force in making people work?

14. "The manorial system was an aggregation of like units; modern business is an integration of a multitude of unlike units into a vast and intricate system." Explain.

15. "The relation of medieval lord and man was a matter of status; that of modern employer and employee is an affair of contract." Explain. Consult a dictionary if necessary.

16. Draw up a comparison of the number and kind of rights of the medieval villain and those possessed by the modern farmer. Do property rights ever change or are they something fixed and constant?

17. Do we rely on custom to fit us into our task? Does a farmer's son necessarily remain a farmer? Does a landowner always remain one?

18. "In the vill custom hardened into a stiff cake which helped to hold people firmly together but also kept them from going ahead." Explain. Cite cases where it held people together; cases where it kept them from going ahead.

19. Characterize several of your friends; that is, think of one and indicate the characteristics that are most noticeable: thoughtfulness, honesty, stinginess, sincerity, kindness, meanness, gentleness, etc. Did you ever think of characterizing a city? Characterize your city with the one term that you think most expressive of it. In the list of *characteristics* which follow, certain ones are appropriate to the vill and certain ones can more properly be applied to a modern country town. *Characterize* the vill as compared with the modern country town by making parallel lists under the headings "Medieval Vill" and "Modern Town." Put the antithetical expressions opposite each other. Be ready to explain fully why you put each in the place you do. Agricultural, dependent, competitive, customary, local, isolated, manufacturing, self-sustaining, producing for gain, making payments in kind, producing for subsistence, using money economy.

20. We say that institutions come into existence to perform certain functions. Looking at the matter in a large way, is not the vill such an institution? What functions did it perform?

21. Looking at it from the same point of view, what could cause the vill economy to disappear?

22. Consider, but do not answer at this time, the following: How did we come to have our institutions of (a) private property; (b) specialization; (c) competition; (d) wage class; (e) landlords; (f) money economy; (g) communities that are dependent upon one another; (h) large cities?

23. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 48-50, and Selections 12, 18-25.

Cheyney, *Industrial and Social History of England*: Chap. 2.

STUDY IV

THE FUNCTIONING STRUCTURE OF MEDIEVAL INDUSTRIAL SOCIETY

B. MEDIEVAL TOWNS AND MANUFACTURES

PURPOSES OF THIS STUDY:

1. To study the organization of the town under simple conditions.
2. To get a view of our manufacturing methods as they contrast with simpler methods.

The beginnings of towns. — Various causes gave rise to the towns of medieval England. In many cases they were simply villages or manors which, for various reasons, had grown populous. Such overgrown villages depended largely on farming the land lying adjacent to the town and it was not uncommon for other business to be stopped during harvest time. In other cases, towns grew up around a fortified place or around a monastery where trading privileges were offered. This was particularly likely to occur if there was a break in transportation at this point. Indeed a break in transportation was perhaps the most important single cause of the rise of towns. Even in self-sufficing, manorial England there was some trade. Grain, meat, and fish would be needed in one part of the country rather than in another. Arms were always in demand as were various forms of foreign goods. Accordingly, at certain places on the coast where goods were landed, at points on rivers where the water became too shallow for boats, at places where rivers crossed roads so that it would be desirable to change from boats to wagons or cart transportation, people would congregate and finally locate permanently. Sometimes towns which had already started owed part of their growth

to the fact that they became legal centers at which court was held, or points at which tax collections were made.

The size and appearance of the towns. — These medieval towns were small when compared with our modern cities. Five thousand persons would have been considered a very large town and many of these urban communities must have had fewer than a thousand inhabitants. As for their appearance :

“There were generally a few streets that were broad and straight, as they were the old highways on which the town had grown up. The attempt was made to keep these clear of encroaching houses and shops by sending a horseman through them once a year with a spear held horizontally, and by forcing the removal of obstructions. Most of the streets, however, had grown up from village by-paths and were narrow and crooked. They were rarely paved, and as they served as a repository for all kinds of offal and garbage we can understand why the towns-people wore wooden overshoes when they went out, and even the saints in the pictures were painted with them on. The houses were of wood in the early period, and there were no chimneys, so that fires were frequent and disastrous until they forced people to a better mode of building. Travelers in Europe now remark upon the picturesque beauty of the old houses, and upon the merits of their construction, but it should be noted that most of these relics date from the very end of the Middle Ages and that they were the select few of their time, and give no indication of the character of the average house. Most of the people lived in narrow quarters, dark and drafty, unsuited for good work places and unwholesome as habitations. Wares were exposed for sale either in the open market-places which are so common in European towns, or in little shops like peddlers’ booths at the front of the house. The municipal government spent little or nothing for public works or police protection; it tried to make the inhabitants share in performing all absolutely necessary duties, but succeeded so ill that all the towns were sinks of disease, and breach of the peace was a constant occurrence.”¹

The economic activity of the town. — For our purposes the outstanding significance of the town was that it meant a new kind of coöperation — that secured by exchanging goods.

¹ Clive Day, *History of Commerce*, pp. 45-46.

Of course the people in these early towns still depended largely on agriculture — still used in their agricultural work the co-operation which involves all working together at the same task. But in addition to their agricultural activities many persons in the towns were traders and specialized workmen, or craftsmen, who sold their products to one another and to outsiders. Thus they coöperated. But it was a coöperation different from that on the manor where all worked at the same task. It was the coöperation resulting from men specializing in different tasks and exchanging the results of their specialized work.

Merchant guilds controlled trade. — In the earlier days, the townsmen who engaged in trade and manufacture were in most towns members of organizations called merchant guilds, *gilda mercatoria*. The trader and the craftsmen of that day were not sharply differentiated.

“Every master craftsman was regarded as a merchant, for he bought his raw materials and sold the products of his handiwork in his shop or at his stall, just as some coopers, shoemakers, bakers, and other tradesmen still do at the present day. The glover bought his skins; the baker his corn, the butcher sold hides as well as meat; the weaver, fuller, and dyer bought wool and woad, and sold cloth; the tanner bought bark and hides, and sold leather. Craftsmen were not only admitted to the Gild Merchant, but also, in all probability constituted the majority of its members.”¹

No one knows positively how these guilds arose. Different ones may have had different origins. Perhaps in their beginnings they were largely religious fraternities; certainly they usually performed many religious functions. Possibly they were originally merely private voluntary associations of men banded together for protection during some journey; certainly their later rules often made provision for their members to be armed, for the ransoming of a guildsman who was taken prisoner, and for tarrying with a member who might be slow in disposing of his wares so that he might not have to travel alone.

¹ Charles Gross, *The Gild Merchant*, I, pp. 107-120.

Whatever their origin, they had become, at the time we are studying them, strongly organized bodies that in many cases must have included practically all of the free men of certain towns. Their functions had a wide range. Quite generally they had control of the manufacturing and selling in the town. Indeed, they had monopoly control, in the sense that no one but guildsmen could engage in such enterprises and that the guidance of these enterprises fell almost entirely under the regulations, or laws, or ordinances of the guilds.

These regulations were planned to give strength to the guilds and to secure to their members the greatest advantages of trade. A guild might, for instance, require that no one in that city except guildsmen could buy to sell again, and no one from outside could sell there at all, excepting under the regulations laid down by the guilds. Outsiders were called *foreigners* and were looked upon with suspicion. If foreigners were allowed to trade at all, it was under strict limitations, and after the payment of tolls and taxes. The ordinances of the Gild Merchant of Southampton contained these statements:

“And no one in the city of Southampton shall buy anything to sell again in the same city, unless he is of the Gild Merchant or of the franchise . . . and no one shall buy honey, fat, salt herrings, or any kind of oil or millstones, or fresh hides, or any kind of fresh skins, unless he is a guildsman; nor keep a tavern for wine; nor sell cloth at retail, except in market on fair days; nor keep grain in his granary beyond five quarters, to sell at retail, if he is not a guildsman; and whoever shall do this and be convicted shall forfeit all to the kind. . . . And no private man or stranger shall bargain for or buy any kind of merchandise coming into the city before a burgess of the Gild Merchant, so long as the guildsman is present and wishes to bargain for and buy this merchandise; and if anyone does so and is convicted, that which he buys shall be forfeited to the kind. . . .”¹

The Gild Merchant not only regulated trade with outsiders but also laid down the rules and laws for trade among its own

¹ University of Pennsylvania, Department of History, *Reprints from the Sources of European History*, 1st Ser., Vol. II, No. 1, pp. 12-17.

members. Said the ordinances: "No one of the gild ought to be partner or joint dealer in any of the kinds of merchandise before mentioned with any one who is not of the gild, by any manner of coverture, or art, or contrivance, or collusion, or in any other manner."¹ . . . "And any one who is of the Gild Merchant shall share in all merchandise which another gildsman shall buy of any other person, whoever he is, if he comes and demands part and is there where the merchandise is bought, and also if he gives satisfaction to the seller and gives security for his part. But no one who is not a gildsman is able or ought to share with a gildsman without the will of the gildsman."¹

The gild also looked after many interests of the consumer. Its members must give full weight and good measure, must see that "the assize of bread and ale be well kept in all points according to the price of corn," and must not sell goods of a quality below the standard set by the gilds. Then, too, the gild set its face strongly against *forestalling, engrossing, and regrating*. In other words, one could not forestall by going out and buying from a vendor or seller who was bringing goods to town before others had an opportunity to buy, and he could not engross and regrade by monopolizing the market in order to secure a high price.

Besides its strictly business functions, the gild was interested in the religious, civic, and social life of the town. It looked out for the poor, provided for the fining or imprisonment of its members, or of others who engaged in brawls or otherwise violated what we should to-day regard as police regulations. It aided its members who had been overcome by poverty or had been taken prisoners in some other community. Sick benefits or aid to members who were ill were paid out of its common fund, and expenses of burial were provided for impecunious members of the brotherhood. In some places the Gild Merchant was probably almost the same thing as the town government.

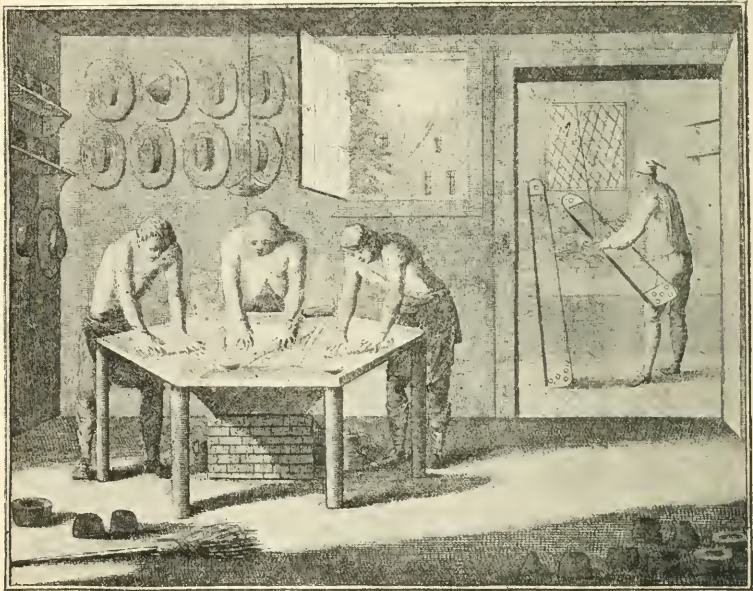
¹ University of Pennsylvania, Department of History, *Reprints from the Sources of European History*, 1st Ser., Vol. II, No. 1, pp. 12-17.

Craft guilds grew up. — As time went on there was such an expansion of trade and such an increase in the number of crafts that the old Gild Merchant was not able to care for the situation adequately. Some groups of craftsmen found that they had more interests among themselves than with all the other merchants and craftsmen of the town. Such groups tended to form smaller guilds of their own which became known as *craft guilds*. Craft guilds, made up of the members of single crafts, in some cases took over all the work of the old Gild Merchant so that the older organization disappeared. In other towns, both guilds existed, more or less supplementing one another. As new forms of industry arose, more and more craft guilds appeared. The following list of the craft guilds in a religious play in York in 1415 gives us some idea of the extent to which occupations had become differentiated by that date. This is not a complete list of medieval craftsmen, but think how it compared with the 7000 and more occupations listed in the last census report of our national government.

“Woolen-weavers; Plasterers; Armorers; Parchment Makers and Bookbinders; Chandlers; Spurriers; Lorimers; Barbers; Curriers; Pouchmakers, Bottlers and Capmakers; Littisters; Tilemakers, Millers, Furriers, Hayresters, Bowlers; Winedrawers, Drapers, Linen-weavers; Innkeepers; Cardmakers; Glovers; Clothiers; Goldsmiths; Goldbeaters and Moneyers; Vintners; Ironmongers; Spinners and Vestmakers; Bowyers and Fletchers; Cooks and Watercarriers; Shear-men; Carpenters; Brokers and Wool Packers; Mercers; Fullers; Shipwrights; Spicers; Pewterers and Founders; (Formerly) The House of St. Leanord — (Now) Masons; Cutlers, Bladesmiths; Sheathers, Scalers, Bucklermakers, Horners; Pin-makers, Latten-makers; Painters; Scriveners, Illuminators, Pardoners; Dubbers; Tanners; Coopers; Fishmongers; Mariners; Tilers; Marshals; Girdlers; Nailers and Sawyers; Smiths; Plumbers and Patternmakers; Bakers; Cordwainers; Tapestry-makers and Couchers; Butchers and Poultry Dealers; Saddlers, Glaziers and Joiners; Tailors; Potters.¹

¹ Adapted from the University of Pennsylvania, Department of History, *Reprints from the Sources of European History*, 1st Ser., Vol. II, No. 1, pp. 29-32.

Under the handicraft system, as it was called, the master craftsman sometimes worked up materials which were brought to him by his customer for that purpose. Sometimes the craftsman raised his raw materials on land he held, or he bought them from some other producer and then manufactured ("manufacture" originally meant "making by hand") them



From an old print

MEDIEVAL CRAFTSMEN

The art of hatmaking in the middle ages. Notice the absence of modern machine methods.

in his own house with the aid of very simple tools which he himself owned. He disposed of his finished product either by "making it to order" for a customer who had ordered it in advance of manufacture, or by selling it to some customer who came to his little shop to purchase it, or by taking it to the town market. His relations to the customer were thus very direct and personal; he had a very real responsibility for

the quality of his goods. His operations were on a very small scale. He might do all the work alone, though he was generally aided by members of his family, and sometimes by an apprentice or two, or even by a journeyman. Obviously his position was very different from that of the modern wage earner who does not own his raw materials, nor the machine at which he works, nor the finished product, and who goes to a great factory to perform his work at stated hours and under definitely fixed conditions. If a choice must be made, he was more like the modern factory owner, but the scale of operations and the social environment were so different as to make such a comparison of little value. He resembled much more the custom tailor, dressmaker, small bakeshop owner, or cobbler of to-day.

Although it appears that all or nearly all the men of a given trade belonged to the craft guild of a town, still not every one could be a guild member, or as they would say "be of the trade." There were certain requirements which had to be met. The eldest son of a guildsman usually inherited the right of guildsmanship, but others had to pay initiation fees or serve an apprenticeship. Since one could not ordinarily engage in a given business unless he were a member of the appropriate guild, the guilds have been called monopolies. In their earlier days, however, they were not necessarily harmful monopolies. Their admission requirements were reasonable. Later they raised their requirements, making it difficult for others to become members. They did this so that a relatively small number of craftsmen might have a monopoly of a given trade and thus make large gains.

Since the craft guild in a sense took the place of the older Gild Merchant, it is but natural that its regulations should be similar to those of the Gild Merchant. But since the craftsmen were more specialized than the members of the Gild Merchant and since some other conditions were also different, the regulations were somewhat different. There were ordinances prescribing in detail the rules governing each trade. They

specified very definitely the proper quality of the work and frequently set forth the sizes, prices, and weights of various articles. Then, too, matters connected with conditions of employment, hours of labor, methods of trading, and the times at which goods could be displayed, were stipulated. Night work might be forbidden, partly because the workmen could not do their tasks properly with the poor light, and partly because it was difficult for the wardens of the gild to inspect the work properly.

We may summarize the work of the craft gilds by saying that they were agencies which took care of :

1. Manufacturing.
2. Selling.
3. Protecting the consumer against fraud.
4. Regulating the hours, conditions, and standards of work.
5. Educating for business.

As was true of the older Gild Merchant, the craft gilds also performed functions outside of the business realm. They looked after many of the social and religious interests of their members in much the same way as did their predecessor.

How the gilds educated for business. — Where the gilds were in control of business, the members would naturally be anxious that persons who were admitted should be of such character and habits that they would aid in solving these difficult questions of the right relationship to the government, the market, and the competition within the gild itself. Of course, it would be necessary also that these new members should be skilled in the hand technique of the craft. To meet this need of the situation, the gilds developed an interesting and thoroughgoing system of business education, known as apprenticeship. To become a master craftsman two preliminary steps were likely to be necessary: first, a period of apprenticeship, and second, a period as a journeyman.

In attempting to understand the apprenticeship system we must keep in mind the character of the industry of the day.

It was very small-scale industry so that the master craftsman could readily give personal attention to the instruction of the apprentice. It was an industry of very simple processes so that a master of only ordinary intelligence could give good instruction in the technical processes involved. It was an industry serving a narrow market and placed in the midst of a simple society, so that the social relations involved could be readily understood and readily explained to another. In such an industry, the apprenticeship system operated. The apprenticeship, which was usually based on an agreement between the apprentice and the master, varied in length, but usually lasted about seven years. During this time the apprentice, who began at the age of twelve to fourteen, became in effect a member of the master's family. He agreed to aid the master in every possible way. The master, on the other hand, agreed to instruct him in his craft. The master also regulated, commonly according to the rules of the guild, the dress, the recreation, the habits of living; in brief, the social and civic training of the apprentice.

AN INDENTURE OF APPRENTICESHIP, 1459¹

"This indenture made between John Gibbs of Penzance, in the county of Cornwall, of the one part, and John Goffe, Spaniard, of the other part, witnesses that the aforesaid John Goffe has put himself to the aforesaid John Gibbs to learn the craft of fishing, and to stay with him as apprentice and to serve from the feast of Philip and James next to come after the date of these presents until the end of eight years then next ensuing and fully complete; throughout which term the aforesaid John Goffe shall well and faithfully serve the aforesaid John Gibbs and Agnes his wife as his masters and lords, shall keep their secrets, shall everywhere willingly do their lawful and honourable commands, shall do his masters no injury nor see injury done to them by others, but prevent the same as far as he can, shall not waste his master's goods nor lend them to any man without his special command. And the

¹ Taken from A. E. Bland, P. A. Brown, and R. H. Tawney, *English Economic History: Select Documents*, p. 147, G. Bell & Sons, Ltd., 1914.

aforesaid John Gibbs and Agnes his wife shall teach, train, and inform or cause the aforesaid John Goffe, their apprentice, to be informed in the craft of fishing in the best way they know, chastising him duly and finding for the same John, their apprentice, food, clothing, linen and woolen, and shoes, sufficiently, as befits such an apprentice to be found, during the term aforesaid. And at the end of the term aforesaid John Goffe shall have of the aforesaid John Gibbs and Agnes his wife 20s. sterling without any fraud. In witness whereof the parties aforesaid have interchangeably set their seals to the parts of this indenture."

At the end of his training as an apprentice, the candidate for craftsmanship might be subjected to an examination and even required to produce a "masterpiece" under the surveillance of the guild's officers.

Such a training gave the apprentice a mastery of the technical aspects of the business, but it did more. It did much to fit him to be a manager of the business and a citizen of the town. He lived in the family of the master, worked at every process of the trade, met the customers of the shop, heard the worries and problems of the master craftsman, and became familiar with the questions which he must meet in the management of his own business. Furthermore he came to understand the relationship of his own business to the other crafts in the town and to the laws, policies, and customs of the country. The apprenticeship system furnished accordingly a more or less automatic means of rising to the management of a business and to a responsible position in the community. It could hardly fail to give the apprentice hopefulness of outlook concerning his life operations.

The significance of the medieval town. — The self-sufficing medieval manor constituted, it is true, much the greater part of the economic life of the time. None the less the town had great importance — an importance, indeed, out of all proportion to the part it played in medieval economic life. As we have seen, it was the seat of commerce and manufacture — of coöperation through exchange of goods. This meant,

for the nation as a whole, an increased ability to gratify wants.

The coming in of the trader and craftsmen meant the development of a new social class. They were neither peasant nor gentry; neither rulers nor ruled. They came to be known as the "middle class." As time went on their ability and wealth raised them to a position of political and social prominence. But that is another story.

The town contributed much toward breaking down the local independence and self-sufficiency of manorial life. In part, it did this by furnishing a market from which goods could be secured and to which goods could be sold. In part, it did it by political rather than economic methods. Since the towns characteristically obtained a charter from the king defining their rights and powers and putting them on a basis which made nearly all their inhabitants free men, and since the manorial serf who could escape and live in a town for a year and a day became a free man, the towns have appropriately been called "islands of freedom in a sea of serfdom." Their function as a haven of refuge for the escaping serf did much to weaken the stability of manorial economy.

Its work has been summed up by one thoughtful writer thus: "Out of town life with its trade, its craft, its middle class, and its powers of united action came three kinds of gains: *wealth and comfort; knowledge and skill; liberty*, and ideals of *honesty and of the dignity of labor.*"¹

SOME COMPARISONS BETWEEN MANUFACTURE IN THE MEDIEVAL TOWN AND AMERICAN MANUFACTURE

<i>Under the gild system</i>	<i>Under American conditions</i>
Manufacture controlled by local monopolistic organizations.	Condition of comparatively free competition.
Small-scale industry; small shops, few people in each; small investment.	Large-scale production.

¹ Tufts, James H., *The Real Business of Living*, p. 89.

SOME COMPARISONS BETWEEN MANUFACTURE IN THE MEDIEVAL TOWN AND AMERICAN MANUFACTURE — *Continued*

<i>Under the gild system</i>	<i>Under American conditions</i>
Mostly tool industry; small amount of machinery.	Machine industry; large fixed capital.
Carried on in small shops; generally in the house.	A factory system.
Goods produced for a small market; identifiable production.	Goods produced for a very wide market; anonymous production.
Comparatively small number of wage earners in manufacture.	Large number of wage earners.
Processes of manufacturing few and simple.	Processes of manufacturing many and complex.
Rules for conducting business laid down largely by gild.	Regulation of business more largely by competition and national, state, and city law.
Relationships personal. Manufacturer in close relationship with consumer, fellow manufacturers, and employees.	Relations impersonal; manufacturer seldom knows who consumer will be; knows little of his many employees.
Few or no middlemen between manufacturer and consumer.	Frequently many middlemen between manufacturer and consumer.
Much manufacturing for custom; "made to order."	Manufacturing for stock; customer not yet known.

Each side of the above comparison represents certain characteristics of the two forms of organization in manufacturing. Work through the comparisons, making certain you understand the significance of each expression used.

PROBLEMS

1. During the medieval period the number of people in manufacturing was small compared to the number in agriculture. Why, then, is it worth our while to spend any time upon the study of manufacturing?

2. What were some of the causes giving rise to the towns? Have we any towns to-day where the inhabitants depend at least partly on agriculture? Are there any in your locality?

3. Explain the so-called "law of location," that a city is likely to grow at a break in transportation. Is your own town or city an example of the "law"? See if the law applies to other towns in your locality.

4. The medieval towns obtained charters from the king. Look under "cities" in any textbook of civics, and see where cities in our country get their authority.

5. How did the towns in medieval England compare in size with American or English cities now? Can you give any reasons for the difference? (Consult the U. S. Census, volumes on population.)

6. Does a town or city of to-day ever owe part of its growth to becoming a seat of governmental activities? What was the origin of Washington, D. C.?

7. What do such names as Ox-ford and Cam-bridge suggest? Remembering that "castra" is the Latin word for camp and that "burg" meant a fortified place, what do Chester, Manchester, Leicester, and Edinburgh suggest?

8. What does it mean to say that the guildsman was "workman, capitalist-owner, and laborer" in one?

9. What are some of the ways in which business relations at the time of the guild were personal? How are they now impersonal as contrasted with this?

10. Are Uneeda Biscuits anonymously (consult a dictionary if necessary) produced? Are Hart, Schaffner, and Marx clothes? Cadillac automobiles? Winchester rifles?

11. The growth of towns meant the growth of a "non-servile" middle class. What were the servile classes on the manor? What was this new middle class?

12. Try to make a classification of the problems that might confront a manager of a modern manufacturing business; for example, problems of finance, problems of market, problems of personnel, problems of risk-bearing, etc. Did these same problems face the master craftsman?

13. What devices have we to-day for securing full weight and good measure for the consumer? For securing good quality? Do we rely in part on "competition"? Explain.

14. Have we any devices to-day for preventing what the medieval merchant called forestalling, engrossing, and regrating?

15. "The simple Gild Merchant passed off the stage when conditions became too complex for it." What institutions took over the tasks of the Gild Merchant?

16. In what ways did the smallness of the market tend to keep the craft guildsman playing fairly with the consumer? Can we rely on this force to-day?

17. In how many cases can you identify the maker of the shoes, clothing, and other articles you are using?

18. Make a list of the functions or tasks of the craft guild. Put down opposite these a list of the methods or devices that we use to-day to perform these functions.

19. What things can you name which were formerly in charge of the guilds and are now functions of government? Do you see what is meant in saying that government tends to take charge of matters which have been experimented upon and standardized by individuals or private associations?

20. Can you see any advantages that came to the consumers at the time of the craft guilds from giving a monopoly of certain kinds of trade to the craft?

21. "The guilds were monopolies." Were they narrowly closed monopolies or could any worthy person be a member? What difference does this make with respect to your judgment concerning the social usefulness of the organization?

22. Explain how the guilds educated for business. Can you see that it makes any difference to society at large whether or not we have persons well trained for business?

23. Have we to-day any automatic provision for the rise of people to managerial positions? How do we get our managers to-day?

24. Do we require examinations for people to enter certain vocations? If so, who conducts such examinations? Why have them?

25. What agencies have taken over the work formerly done by the apprenticeship system in training for citizenship?

26. "The guilds were very important agencies of social control." List the services they rendered in this respect.

27. It has sometimes been said that the craft guild was like our modern trade union. Was the guild made up of people who worked for others for hire? Is the modern union a part of city government? Was the guild more like a modern union or like a modern merchants' or employers' association?

28. Had specialization been carried as far in the medieval town as in the modern town?

29. Explain how it can be said that we owe largely to the influence of manorial life our ideals of courage, loyalty, protection for the weak, chivalry toward women, courtesy and consideration of others; and to the influence of the towns and the middle class we owe largely our ideals of liberty, honesty, fairness, and the dignity of labor.

30. In the town, business relations were based on contract rather than on custom, and money payments rather than payments in kind made their appearance. Explain.

31. Can you name any industries of to-day which survive in much the same form in which they existed during the medieval period? What about the local cobblers?

32. Can you show any relation between the growth of towns and the use of money, competition in business, producing for profit, speculative market, a wage system, agriculture for sale or commercial agriculture, specialization of labor?

33. In the comparison made in the text between manufacture in the medieval town and American manufacture, name some features that have come in as new features since the day of the handicraft system. Name some that have disappeared.

34. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 48-52, and Selections 26-40, 59, 60.

Cheyney, *Industrial and Social History of England*: Ch. III.

STUDY V

THE FUNCTIONING STRUCTURE OF MEDIEVAL INDUSTRIAL SOCIETY

C. THE BEGINNING OF COÖPERATION THROUGH EXCHANGE

PURPOSES OF THIS STUDY:

1. To observe the difficulties connected with the development of medieval trade and commerce.
2. To see how commercial institutions and organizations were adapted to the needs of the case.
3. To compare medieval commercial organization with that of our day.

Some advantages of trade and commerce. — Man has found that commerce is a great aid in the process of active adaptation. It assists greatly in gratifying wants. To begin with, it enables us to secure goods which would not otherwise be available, for not all the things we desire can be produced in our own community. Then, too, by making it possible for persons and even communities to specialize in the work for which they are best fitted, we get a larger quantity and also a better quality of goods. Furthermore, contact with others through trade and commerce enables us to learn of new methods and processes, quickens our imagination, and makes us more productive.

This was all as true of medieval England as it is to-day. Historians tell us that although a favorable season might result in almost a glut of foodstuffs, times of hunger were not uncommon on the medieval manor when the seasons were unfavorable. These famines were likely to be followed by sickness and pestilence and the people, weakened by lack of food, would die in great numbers. In other parts of the world, better methods of farming were being practiced, but the manorial ten-

ants were unaware of them. A development of trade and commerce would have been so beneficial in preventing local famines, giving variety of food, improving methods of production, and relieving the provincial ignorance of the people that we might be forgiven if we marveled at the very slight development that had occurred in commerce.

Why medieval trade was meager. — When, however, we observe the difficulties which surrounded the development of medieval trade, our surprise is not at its meagerness but at its extent.

As we have seen, the organization of society in medieval England was mainly on the basis of self-sufficing, independent units and these units were in the powerful grip of custom. When people live in isolated communities without seeing or hearing of others and when their whole habit of life consists in following customs which have come down from time immemorial, it is not an easy thing to develop new methods of gratifying wants. It is easy for us of the twentieth century to look back and see how they would have gained through trade. It was almost impossible that they should have realized it.

Quite aside from the restricted mental outlook of the people of medieval times, there was a very serious handicap to exchange in the lack of good roads. There were a few good roads dating from the time of the Roman occupation of England, but for the most part they were unspeakably bad. Four, six, and even eight of the small horses of that day were often necessary to haul a loaded cart through the ruts and mire. The manorial lords were supposed to be responsible for keeping up the roads, but their responsibility was not always clear and even when it was, they neglected their duties. Bridges were of course needed for the passage of rivers, but very few were built, and the ferries or fords which had to be relied upon for the passage of rivers were none too safe. We, to-day, have difficulty in understanding a system which relies upon the voluntary contributions of churches and pious persons for the maintenance of roads and bridges, yet such was the practice in medieval

England. It existed because the state was neither strong enough nor interested enough to maintain good means of communication.

The methods of carriage were as poor and unsatisfactory as were the roads used in trade. We must not think in terms of cars propelled by modern power systems. Most people had to rely on their own backs or on baggage horses. Low two-wheeled carts were sometimes available, but carriages were possessed only by the very rich. The limited capacity of these means of carriage, combined with the atrocious condition of the roads, hampered trade in a way which can hardly be overestimated.

Danger of violence and robbery were so great as to make land travel at best a precarious undertaking. All merchants found it necessary to carry arms for their own protection or even to travel in groups or caravans the better to resist attack. The difficulty was augmented by the fact that many of the merchants themselves were not wholly averse to a little robbery "on the side." The lords of the manor were frequently implicated in the robbery of merchants and, if they did not rob outright, the tolls levied by the feudal lords who controlled roads and bridges were almost as confiscatory as theft itself.

If the merchant took to the water routes in an effort to avoid the difficulties of land travel, he was barely better off than before. The cost of carriage might be less and, of course, more goods could be loaded upon a single boat than could be put upon a land conveyance, but the rivers were not kept in a fit condition for travel. Their channels were frequently obstructed; they shifted constantly; methods of navigation were not well developed; and the flow of water at various seasons was none too certain. Here, too, the tolls and taxes levied by feudal authorities were frequent and although it was easier to protect oneself against robbers, safety was by no means certain.

Impediments to foreign trade. — Even more serious difficulties lay in the way of large trade between England and foreign countries. Commercial treaties were rare in those days and

in any event the central government did not assume responsibility for facilitating trade or indeed for protecting its citizens who engaged in trade and travel. Prejudice against persons not of one's own immediate group ran very high and it is not far from the truth to say that the inhabitants of a foreign country would ordinarily be regarded as enemies.

Then, too, for both domestic and foreign trade there did not exist the market organization of our day. A producer in England had few facilities for finding out where his goods might be needed. The telegraph, the telephone, mail service, and trade publications upon which we now so largely depend were all, of course, unknown. If a merchant started with a load of wares for sale, either at home or abroad, his trip would be an adventure filled with risks and uncertainties such as we can hardly appreciate. Where would he go; where would he find the best places to sell his goods; where would he find the best commodities to bring on a return trip; what goods would be most wanted; would he find the market overcrowded when he arrived? Because of the lack of organized markets, all these questions threw risks and uncertainty into the activities of the medieval merchant.

The finances of the time were also unorganized. On the continent many of the great feudal lords issued coins of their own. These coins could never be relied upon for weight or value. Even in England counterfeiting was not uncommon, and in all medieval commerce the coins of one locality or country were looked upon with justifiable distrust in other places. While the goldsmith, who would weigh and test coins, did much to overcome the difficulties of a poor coinage system, it was usual to make payments in distant places by actually sending bullion or goods. We, of course, rely upon our banking system and other financial institutions to help us in the easy transmission of money and credit. The lack of these thoroughly organized and trustworthy institutions was a serious handicap to medieval commerce.

The means of transportation were as unsatisfactory in foreign

trade as they were in domestic trade, and the dangers were not less. The ships of the time were very small and unsafe and the knowledge of navigation was very limited. The general use of the compass belongs to a later period and without it navigation of the open seas was limited, slow, and timid. One hesitated to go far out of sight of land. The sailors of the time were filled with superstitious fears concerning the dangers of unknown parts of the world and especially of the ocean. Such water routes as had been fairly definitely established were infested with pirates from whom there was no protection, excepting such as the merchant himself could furnish. National navies, such as to-day keep the sea clear of marauders, were then unknown. The difficulty was increased by the fact that many of the early foreign merchants, like many domestic traders, could hardly be distinguished from pirates, since they engaged in piracy if a good opportunity arose.

How foreign trade was organized. — The importance of medieval England's foreign trade lay not in its quantity but in its contribution to the development of coöperation through exchange. Throughout the medieval period, England was largely a self-sufficing country. Its exports were mainly in such raw materials as wool, leather, tin, and lead. Its imports were chiefly luxuries, used by the rich and well-to-do, and the tar used to cure sheep of scab.

Few Englishmen engaged in foreign commerce in the earlier days. When the people of England and of northern Europe offered a possible market for exchanging goods from the Orient, it was the merchants of Italy who for a long time controlled the trade. The spices, the silk and cotton, the fine cloths, the dyestuffs, the diamonds, pearls, and other jewels, that found their way northward and into England came very largely through the hands of Italian merchants. These Italian merchants had, before other people of Europe appreciated the value of such things, built up a considerable system of commercial law, business organization, bookkeeping, and banking, and it was from them that England and the other countries of Europe

learned their early lessons in commercial education. The goods which the Italian merchants sent to England in exchange for her raw products came once a year on what was known as the "Flanders Fleet." This fleet was a group of vessels which was sent out under the authority of the Venetian government. The goods carried by this fleet of vessels were owned by private merchants, each of whom "adventured" on his own capital within the general organization carried on by the government. On its way northward the fleet divided, sending part of the galleys to Bruges, or some continental port, while the other part carried its cargo to England.

The trade with Germany and the countries of the north was for the most part controlled by a group of merchants of these northern countries, known as the German league or the German Hanse. At first the term "Hanseatic League" seems to have meant this group of merchants, but later the term was applied to a group of the chief cities that were represented by these merchants. The purpose of this organization or association was to furnish protection to its members against feudal lords, pirates, and highwaymen; to make commercial treaties with other cities, and to secure a monopoly of as large a part of the commerce of northern Europe as possible. The merchants of the Hanseatic League carried on their trade with English merchants chiefly through London and a great establishment which the League built there called the *Steelyard*.

The exports of raw materials, of which wool was much the most important, was also largely in the hands of a monopolistic group called the *Merchants of the Staple*. Partly as a means of easy control and regulation of the export trade, there was a requirement that these raw materials should pass through certain towns known as "staple towns" or "staples." Sometimes there were several of these towns, sometimes only one. This definite designation of a few centers through which the trade must pass made it easier to collect the export dues, to insure good quality of goods by inspection, and to set up a special court for handling disputes. The merchants or

“staplers” constituted a fellowship or organization similar to the guild fellowship. Their monopoly control was partly due to their having bought the privilege from the king, who always needed money; partly due to the fact that it facilitated good handling of the trade; partly due to copying the example of the guilds.

A little later, a group of Englishmen called *Merchant Adventurers* engaged in export trade of finished goods. This group was also a monopolistic fellowship, membership being open to any merchant who would pay the fees and be bound by its regulations. It is interesting not only for its own sake but also because it served as a sort of model for the great trading companies called “regulated companies,” of the later centuries. We shall have more to say later concerning the way these companies carried on their work.

How domestic trade was organized. — Having seen something of how goods from abroad reached England and of how England’s exports found their way into other countries, let us see how trade was organized within England itself. The persons who transported goods and had them for sale were chiefly merchants, peddlers, and chapmen. The places at which goods were sold were principally fairs, markets, and shops.

The fairs were great centers of trade. We are none too certain of their origin. Probably they arose, in part, because of the desire to have witnesses present at a trading transaction as a safeguard against being charged with trafficking in stolen goods. In part, they arose from a desire to have trade flow in definite channels so that tolls and taxes could be more readily levied. Partly, also, they sprang from religious gatherings, which were always a fertile field for the operations of the merchant and which protected him by the powerful arm of the church against robbery and theft. Whatever may have been their origin, they spread fairly rapidly in the twelfth, thirteenth, and fourteenth centuries. There was real need of their services and a great impetus was given them by the fact that typically they had freedom of trade in the sense that they lay outside

of the jurisdiction of the guilds. This would naturally attract the foreign trader and in those days "foreigners" meant any one from outside the local community.

The fairs were held at quite infrequent intervals, sometimes only once a year. It was to these great fairs that the foreign merchants chiefly wended their ways, bringing goods to be sold and also making purchases of goods to be carried abroad. Here could be found, at least during the later middle ages, "merchants from Venice and Genoa with costly spices from the East and silks and velvets and 'things of complacence,'" the Flemish weaver with linen cloth, the Spaniard with iron, the Norwegian with tar, the Gascon with wine, and the Teuton with furs and amber. At the fairs also were gathered native produce — wool, the source of England's wealth in the middle ages; tin from Cornwall; salt from the Worcestershire springs; lead from the Derbyshire mines; iron from the Sussex forges; and cloth which the drapers were wont to purchase, "at home and abroad about Michaelmas for the fairs ensuing." "Here the bailiff purchased his farm implements and stores of salt and sheep-machines and fish for Lent, the noble his armour and steed and falcons, the lady her robes and dresses."¹ To these fairs came also the merchants and the guildsmen from neighboring towns seeking a place at which they could purchase wares for resale or an opportunity to dispose of goods of their own locality. Regardless of whether the fair was under the control of an abbot or a nobleman, tolls were collected from all merchants for the advantage of the "owner" of the fair. Fees and rents were charged for space to exhibit goods and good order was preserved by the person under whose auspices the fair was held.

It was in these fairs that there originated in England the system of commercial law, or law of business dealings, which in a large measure exists to-day. Merchants from abroad and especially the Italian merchants had much to do with the practices which became customary and enforceable at these fairs.

¹ E. Lipson, *The Economic History of England: The Middle Ages*, p. 221.

Traveling as they did from fair to fair they put the same system into effect and thus there grew up throughout England a system of business law which was recognized through the country as the binding "practice of merchants." There grew up, also, courts that very rapidly adjusted disputes between merchants, basing their decisions upon the laws of the merchants. At these fairs, also, there was an opportunity for the beginnings of banking. The practices of the most commercially advanced countries in using notes and drafts became familiar to all. The meeting of many people from many places developed a new confidence in strangers which made more easy the coming of such commercial institutions as banks and credit.

A market was usually established in a town by a grant from the king to some favored individual or to the town as a whole. Such a town was commonly called a "market town." These market towns furnished places where the goods purchased by the merchants at fairs could be further distributed, or where the exchange between country and town, or between craftsmen of the town, could readily take place. Markets were apt to be held weekly or semi-weekly and here, as at the fair, buyers and sellers could meet and exchange in conformity with the legal requirements of the time. The principal benefit of the market was to the people of the town in which it existed, whereas a fair, also authorized by a royal grant, was a national or even an international institution.

In the period we are studying, the shop was a relatively unimportant trading place except in such a large city as London. They were not shops as we think of them but merely stalls in the market place that finally developed into sheds; or shelves attached to the front part of the craftsman's house; or dingy cellars under the house. All of this is, of course, a far cry from our modern retail stores, though certain parallels may be found in our delicatessen stores and other small shops located on residence streets.

To and from these markets and fairs, and more especially the fairs, traveled the merchant, the peddler, and the chapman,

carrying the trade of England. The merchants were by far the most important because of the amount of goods they carried. Peddlers who carried nothing that they could not carry in their packs were of consequence only in their numbers and the chapmen were in importance about midway between the merchants and the peddlers.

Some characteristics of medieval commerce. — Perhaps the most important characteristic of medieval commerce was its meagerness. Compared with trade such as we know, the exchange of the medieval period was small and insignificant. The Flanders Fleet, the arrival of which was a significant commercial event, meant after all only the coming of a comparatively few small ships once a year. The fairs, brilliant centers of activity and business though they were, as contrasted with the humdrum monotony of most medieval existence, transacted a volume of business that is very small indeed when compared with that which takes place daily in any of our larger modern cities.

The merchants of early medieval England were not such specialists as are merchants of to-day. The Flanders Fleet would bring to England all the variety of things that could be furnished by Italy or the Orient and even the traveling merchants would carry quite a varied stock of goods. One historian of this period speaks thus of the goods carried by a peddler or chapman :

“A host of small useful things were concealed in their unfathomable boxes. The contents of them are pretty well shown by a series of illuminations in a fourteenth-century manuscript, where the peddler is represented asleep at the foot of a tree, while monkeys have got hold of his box and help themselves to the contents. They find in it vests, caps, gloves, musical instruments, purses, girdles, hats, cutlasses, pewter pots, and a number of other articles.”¹

The medieval merchant specialized neither in the goods he handled nor in the functions he performed. His functions involved much more than the buying and selling of goods. It

¹ From J. J. Jusserand, *English Wayfaring Life in the Middle Ages*, p. 233.

was necessary that he should do his own transporting since there were no special carriers upon which he could call for the duties of transportation. It was necessary that he should obtain his own market information. Trade journals, government reports, and the information that can now be obtained by telegraph and telephone were not at his disposal. He had to protect his wares himself. On land, he found it necessary to be a policeman and a soldier. If he traveled by sea, such naval forces as he could organize were his only protection against pirates or competitors. All the risks of trade and travel, of loss by fire or storm, he carried himself, since insurance companies were not in existence to aid him. Losses from bad credits could not be avoided by insurance, nor could they be prevented through such institutions as our modern credit and commercial agencies. He furthermore performed the functions of advertising and selling, since the modern advertising agencies and the modern specialized selling agent were not available.

In keeping with the foregoing characteristics of medieval trade, it was conducted largely by monopolistic associations. We have already seen the monopoly of the guilds in domestic trade, although we must remember that their monopolistic control did not extend over the fairs and markets. As regards foreign trade, by means of associations risks could be distributed, information gathered and distributed among members of the group, losses made less, and greater protection given while the merchants were on the way. Then, too, the king could more easily tax and control a few associations than he could many individuals. Here we have one of the reasons for the monopolistic character of the staplers, the merchant adventurers, and the later "regulated companies." Another reason lay in the fact that merchants were unwilling to take the risk and expense of opening up foreign trade unless they could be safeguarded in it after it had developed.

While these early companies furnished the basis for some of the features of the modern corporation, such as management by elected officers, regulations or by-laws to govern these

officers, the "separateness" or separate entity of the company and (rarely) a common stock or fund of capital, they must not be confused with our modern corporation. It was the task of the medieval company to furnish the general environment for trading; such as information, protection, and the maintenance of stations or "factories" as they were then called. Each merchant "adventured" on his own capital or in partnership with some other merchant and made his own profits or losses. His dues to the company were a sort of fee for maintaining what we have called the trading environment. A full comparison can best be made, however, after we have studied the modern corporation.

Social control of medieval commerce. — Trade and commerce, like most other affairs of our industrial life, are carried on subject to social control. There are always "rules of the game."

We have already seen that the gild was a very important agency of control. We have also seen the growth of commercial law in connection with the fair. Another powerful agency of control was the church. This strong organization had a powerful influence over the medieval mind. The church was a state in itself, with its own laws and courts, and it particularly concerned itself in the business field, with the enforcement of two doctrines. One of these was that goods should be sold for a just price; the other, that the taking of interest, or usury as it was called, was sinful.

In medieval England, money was seldom used for business purposes. It was generally borrowed in case of misfortune or to enable some one to go on a crusade or other religious pilgrimage, or to help build a monastery or cathedral. The taking of interest under such circumstances naturally seemed to the church objectionable. Later when opportunities for using money in trade and industry increased, the church was unfortunately slow in changing its attitude. Its opposition to interest somewhat hampered and retarded the growth of business enterprises. Over against this defect, however, we must remember that the church influenced the development of fairs and markets

in connection with its religious festivals and that it assisted in maintaining the peace and order so essential to the development of commerce.

The doctrine of the just price was widely accepted both inside and outside of the church and widely applied to both commodities and services. It has been defined as "the common estimation of what was right" and it was believed that this could be determined in advance of a transaction. This belief strongly influenced all trading processes and was indeed crystallized into municipal regulations and national laws in connection with the so-called assizes of bread and ale which typically provided that the price of these commodities should have a certain relationship to the price of grain.

Of course government played an important part in control. We already know that it was not always easy to differentiate between the guilds and the local municipal government. The central government played its part by such methods as the issuance of a national currency, the standardization of weights and measures, the maintenance of trade routes, the regulation of foreign trade, the determination of relations between English and foreign traders, the prohibition of usury, and the enforcement of the payment of mercantile debts.

Custom did not, of course, control trade and commerce to the extent it controlled manorial life. Nevertheless, its indirect influence was very great indeed. The formal regulations of the guild, of the town, of the national government, and of the church were largely statements of customary practices.

PROBLEMS

1. Why do we buy bananas from Central America? Why do people in Chicago get fruit from California and fish from the Atlantic Coast?

2. Give as many illustrations as you can of the way in which people of medieval England could have benefited by exchange. Make a list of the undesirable conditions of medieval life which could have been remedied by trade and commerce.

3. Does trade make life less precarious? Would greater trade in medieval England have been likely to have resulted in less waste in a year of good production?

4. Explain what is meant by saying that medieval England was organized so that people might exist with little commerce.

5. "The manor was an institution well adapted to an age of little commerce." Explain.

6. Make a list of the transportation facilities which aid us in our commercial relations. Contrast them with the ones that existed in medieval times.

7. In his *History of Commerce*, Day tells of a "glover who was traveling to market (1499) and was drowned with his horse in a pit which the miller had dug to get clay from the road. A court acquitted the miller on the ground that he had no malicious intent, and merely did not know of any other place where he could get the kind of clay he wanted." What would a modern court decide? What is the significance of this story for the purposes of this study?

8. A navigable river flows past a piece of land which you own. Why do you not levy a tax upon the commerce which passes up and down on the stream?

9. Do the "Adventures of Sinbad the Sailor" in *Arabian Nights* suggest anything to you concerning the superstitions which might have been rife in the minds of medieval sailors? Would such attitudes be a serious handicap to commerce? Compare the difference in trustworthiness of the "weather eye" of a ship captain of a century ago, and the government weather reports and prophecies of to-day.

10. Make a list of the things which make sea travel less dangerous and risky to-day than in medieval times.

11. Outline the hindrances to medieval international trade. What were the consequences upon the size and character of that trade?

12. When the medieval merchant had a large stock of goods, what questions faced him in deciding where to go with them? How does a modern merchant attempt to secure an answer to these questions?

13. Just what difficulties arose because of the unorganized finance in medieval times?

14. Can you indicate any ways in which our banks and banking systems help us to overcome some of the difficulties of the medieval merchant?

15. Is our system of law an aid to commercial organization? Our army and navy?

16. Look up Venice in the encyclopedia and get information concerning its importance in medieval commerce.

17. Make a list of the commercial institutions of importance in which the Venetian merchants instructed Europe.

18. Who and what were the merchant adventurers? The staplers? The Hanse merchants?

19. How could it possibly come about that England would export wool to Flanders and then buy back the cloth made from this same wool? Do you know of any country to-day that exports some raw material and buys back a finished product?

20. Can you give any examples of modern monopoly in trade?

21. Can you see any similarities between the Flanders Fleet, the Hanseatic League, the merchant guilds, the later merchant adventurers, and modern corporations?

22. Find out what the Webb Act is in connection with our foreign trade to-day. Does it remind you of anything in medieval England's organization of foreign trade?

23. Why should the merchant adventurers have been given a monopoly? Could any successful merchant have joined them? If so, *did* they have a monopoly? Is the case parallel to that of the guilds? Is it parallel to our modern patents and copyrights?

24. What was the law merchant? Whence came it? In what sense was it international law? What, if anything, do we owe to the law merchant?

25. Draw up a comparison of the market and the fair. We have to-day institutions bearing their names. Are they derived from the medieval institutions? If so, have they retained their old functions?

26. Indicate the relative importance of the fair, the market, and the peddler in the commercial organization of the time. Do these agencies play as prominent a part to-day as they did in medieval times? If not, why not?

27. Name as many institutions as you can which are engaged in commerce (the mail order house and the jobber are examples). Which of these are new? Which old?

28. What was the medieval doctrine of fair or just price? What were some of the church theories with respect to commerce? What aid to commerce came from the church?

29. Does government aid more in trade and commerce to-day than it did in medieval England? If so, in what ways?

30. Give a number of illustrations showing specialization in modern commerce. Is a railroad a specialist? Is a collection agency? Is a retail clothing store? A butcher shop?

31. What is meant by saying that medieval commerce was non-functionalized? To what agencies do men in modern business turn over the functions of transportation? Advertising? Production? Gathering of market information?

32. Why were financial panics, commercial crises, and industrial depressions unknown in medieval England? What kinds of economic disasters did medieval people fear?

33. Is commerce aided by standardized and predictable conditions? What part should you expect commerce to play in suppressing local disorder? In rendering social arrangements more certain? In standardizing legal codes? In preventing war?

34. Try to explain what is meant by speaking of the "organization of trade" in a country.

35. Draw up a comparison of medieval and modern commerce similar to the comparison made in the last study of manufacture in the medieval town and modern American manufacture.

36. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 48-53, and Selections, 41-62.

Cheyney, *Industrial and Social History of England*: Chapter IV.

STUDY VI

THE BEGINNINGS OF CAPITALISTIC AGRICULTURE AND MANUFACTURE

PURPOSES OF THIS STUDY:

1. To study some of the causes which tended to break up local self-sufficiency and to lead to exchange coöperation of national and even international scope.
2. To see how these causes brought about a new organization in agriculture and manufacture.

Modern organization differs greatly from the medieval organization. — If we were to summarize the preceding three studies in two statements we should say: first, we have found that the want-gratifying machine or economic organization of medieval England was very different from the one which exists to-day; second, we have seen the beginnings of a system of coöperation of specialists by means of exchange. In the next few studies we shall traverse, in seven league boots, the period from medieval times to the present day. In this period, exchange coöperation becomes the dominant form of want-gratification. This development was attended by so great changes in methods of production, in social classes, in mental outlook — in brief, in our entire social organization, that we commonly say that we are living in a different world.

In this lesson we shall observe some of the more significant changes which occurred in the organization of agriculture and manufacturing. In the next lesson we shall study the rise of the modern organization of trade and commerce.

The manorial organization tended to change. — A point which was much emphasized in our study of the economic

organization of the manor was its fixity, its static nature, its control by unvarying custom. We must not forget, however, that even in the most static period there were some conditions which tended to break up the manorial system. The inhabitants of the manor, and especially its officials, attended fairs and markets — and this with increasing frequency as time went on. The medieval bards and travelers brought in interesting stories of the outside world. Foreign wars occasionally served to arouse interest in affairs away from the home. Villains did sometimes escape to towns and become free men. The developing town life in many ways helped to weaken manorial stability.

The change in social classes. — One of the most significant factors connected with the break-up of the manorial system was the development, through several centuries, of new social classes on the manor.

There were many ways in which the serf or villain could become a free man. He might be freed by his lord as an act of kindness or of gratitude for some service rendered; he might become free by running away to a town; or by purchasing his liberty; or by entering the ranks of the clergy — a method somewhat frequently used after the Black Death had greatly depleted the priesthood. More important, however, than all these was the method called “commutation of services.” Oddly enough this method did not seem to lead to freedom at all, at least in the earlier days.

It will be remembered that the medieval villain owed certain services to his lord which were fairly burdensome, involving indeed about half his working time. As the use of money became more common, the villain often preferred to pay a sum of money to his lord instead of rendering these services. He used his time, which was thus set free, in working for others or in raising products for sale at the markets and fairs. This commutation of services was often as pleasing to the lord of the manor as it was to the villain. The lord frequently had need of money for use in a foreign war, such as the Hundred

Years' War, or for use on such a pilgrimage as a crusade, or for living in town or at the king's court. The commutation of services did not in itself free the villain, but in course of time it became impossible to distinguish him from the freeman, since the freeman typically made money payments instead of rendering services. By 1450, perhaps half of the villains had been freed by this method and certainly by 1600 serfdom was at an end. No laws were passed making the villains free; there was no emancipation proclamation. It simply became impossible to distinguish them from free men because their rights and duties were like those of free men.

The movement had been hastened by a great pestilence called the Black Death which swept over England about the middle of the fourteenth century and carried away nearly half of the entire population. This meant such a great scarcity of labor that the villains, and indeed all other workers, were put in a strong position. The lords were so anxious to get help in the fields that a villain who ran away to another manor was likely to be treated as a free tenant, or to be hired at good wages by his new lord instead of being punished and sent back, as had formerly been his lot. One who chose to remain in his old home was likely to be able to arrange quite easily for a commutation of his services. Either course spelled freedom. It ought to be noticed, too, that the Black Death weakened the fixity and stability of the old system because of the mental agitation and turmoil and flight from plague-infested regions which attended the catastrophe.

The new organization in agriculture. — The conditions we have been describing gradually led to an organization of agriculture quite different from that of the old manorial system. Under the old arrangement, the lord of the manor received nearly all his income in farm products and he spent most of his time at the manor consuming the goods which were turned over to him. During the fourteenth and fifteenth centuries, however, he found his situation a difficult one. Serfdom was a decaying institution; the rents from his mills and the other monopolies of

the time on his manor declined with the decline in the number of tenants, as did also the amounts of payments in kind and the fees and fines from his courts. A new organization of affairs could hardly fail to appeal to him and this new organization was made easily possible by the increasing use of money payments. It gradually became common for the lords to turn over the management of their estates to some freeman or to some enterprising villain in a way not greatly different from the lease of a farm to-day by a tenant. The tenant or "farmer" ("farmer" comes from *firma* meaning "definite sum") leased the land for a definite sum and employed others as farm laborers. This system was one of contract instead of custom; that is, instead of doing just as they had always done, they bargained and reached an agreement. The parties concerned were relatively free to make as good a bargain as they could.

Still another factor had hastened the emancipation of the villain and the rise of a new system of agriculture. For various reasons the demand for English wool had grown, and sheep-raising had become profitable. The high price of labor, resulting, in part, from the Black Death, increased the profitableness of sheep-raising as compared with other agricultural pursuits, since only a small working force was necessary on a "sheep-run." To raise sheep successfully, however, it was necessary to break away from the open field, strip system and include large areas of land in an inclosure or pasture. On most estates these strips were still held by tenants under the old customary rights. Many landowners, and this term now included wealthy merchants who were continually buying estates, desired to inclose these holdings and go into the business of raising sheep. By purchase, by fraud, by threats, and even by open violence, the tenants concerned were separated from their holdings on a very large scale. These operations have been called "the first inclosure movement." The dispossessed tenants either became agricultural laborers or went to the towns. Thus the serfs and the slaves became freed from the land, and such freemen as did not move to the towns and become merchants

or craftsmen or workers for hire, became tenants or agricultural laborers. The landed gentry, the tenants, and the agricultural laborers constituted the new agricultural classes.

While considering the changes which occurred in agriculture we must not fail to take account of the progress which occurred in agricultural methods during the sixteenth, seventeenth, and early eighteenth centuries, although this progress resulted largely from the forces mentioned in the next paragraph. It is true that the improved methods did not have general application until after 1750, but they had been gradually introduced prior to that time and were in part made possible by inclosures. It is hard to realize how little the early English farmer knew of grains and vegetables that are well known to us. In this period, farmers began to try some of the crops raised on the continent of Europe. Turnip culture was borrowed. Waste lands were cleared and given over to cultivation. Marshes and fens were drained — thanks to Dutch engineering skill. Writings began to appear on agricultural subjects. In brief, English agriculture was prepared for the next great step forward.

World forces made for change. — From this discussion of the changes in agricultural life, it is easily seen that within England itself there were great forces making for change. If, however, we are to understand the later course of this progress in agriculture, and particularly if we are to understand the changes which took place in the towns and in trade and commerce, we must lift our eyes from England to look at world happenings. These happenings were phases of the great world movement which has been called the opening of the modern era. Among them were the invention of the compass, the great geographical explorations and discoveries, the invention of the printing press and the development of printing, the renaissance, the religious reformation, and the rise of strong central governments.

Explorations and discoveries. — Of all the hindrances to commerce during the medieval times none was greater than the difficulty sailors had in finding their way when out of sight of

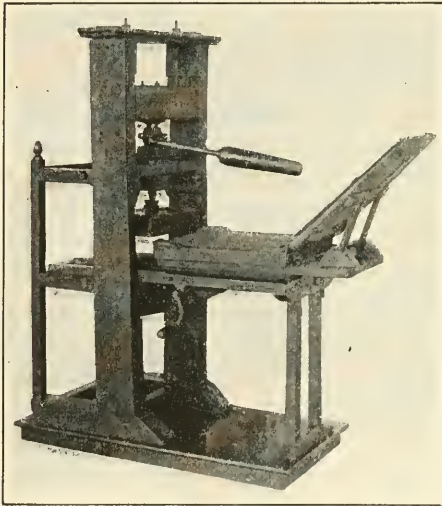
land. They had no satisfactory guide. A crude form of compass had long been used by the Saracens who magnetized a needle and, fastening it to a piece of wood, floated it in a cup of water. This compass was very unstable and uncertain and it was not until it was improved, during the fourteenth and fifteenth centuries, that it became a trustworthy guide. In this period, also, the astrolabe, which enabled one to determine roughly his position at sea, came into use. Mariners could now venture far to sea with comparative safety. The basis had been laid for the great geographical discoveries.

The spirit of exploration had gradually been developing. Fabulous stories from merchants who had visited India and other eastern countries, and from such travelers as Marco Polo, stimulated the interest in the Orient which was already strong because of its rich trade. Since water routes were cheaper and better than land routes many people tried to find a water route to India. The exploration of the west coast of Africa by the Portuguese, the rounding of the Cape of Good Hope by Diaz in 1489, the discovery of America by Columbus in 1492, the reaching of India via the coast of Africa in 1497, the voyage around the world completed by Magellan's crew in 1522 all give evidence of the fervor which possessed men for exploration and discovery.

Our interest in these explorations and discoveries comes from the fact that they opened new lands for trade, paved the way for the development of colonies which still further stimulated trade, widened men's horizons to take in the world instead of merely their petty local interests, and resulted in pouring a vast quantity of gold and silver into the currencies of Europe. This stimulated the breakup of serfdom by making it easier to make payments for commuted services, and excited, in both town and country, the development of enterprise for gain rather than merely for subsistence.

Factors which increased mental activity. — About 1450 the invention of printing from movable type occurred. As long as men had to depend on manuscripts written out painstakingly

by hand, or on pages printed from carved blocks, a widespread knowledge of the world we live in was not likely to be acquired, and not likely to be retained after it had been acquired. With the invention of the printing press of the movable type kind, conditions changed greatly. "The world was reduced to print." When one thinks of the amount of reading we do nowadays and what limited beings we would be without printed matter as a means of communication, one realizes



PRIMITIVE PRINTING PRESS

Compare the work necessary to make duplicate copies, once the type is set, with the work of recopying by hand.

doing things. The renaissance, starting in Italy and spreading over the rest of western civilization, meant literally a "new birth" of art, science, and literature, which in these realms freed men's minds from "authority" and made them inquiring, just as the great religious reformation did in the realm of religious thinking. The importance of alert, active minds as an aid in our struggle for want-gratifying goods cannot well be overestimated.

the tremendous importance of this invention.

Many times we have seen, both directly and indirectly, the importance of "men's minds" in the process of active adaptation. Two great movements affecting mental outlooks, the religious reformation and the renaissance, occurred in the period we are studying. These movements led to new ways of thinking and acting, — in brief, to a new intellectual life, all of which reacted powerfully to break up customary methods of

Strong central governments grew up. — The manors and towns of early medieval England acted in some ways like independent political units. For example, one manorial lord might make war against another; one town might enter into trade relations with another, much as countries do now. Both manors and towns acknowledged the overlordship of the king, but the king, who represented the nation as a whole, was at that time very weak; the towns and lords of the manors were powerful. During the period between 1400 and 1750 great changes took place in the matter of political strength. Some strong kings came to the throne and unified the nation. The king's court supplanted the manorial courts; national regulations supplanted those of the guilds. Gradually the national government came to be the one which regulated the economic or business affairs of the nation. It took charge of taxation; improved the roads, which had formerly rendered trade and commerce so difficult; punished robbers; established better systems of coinage, weights, and measures; and did many other things which made people safe and trade less difficult. Sometimes we call this movement which took place both in England and on the continent, the rise of strong central governments; sometimes we call it the decay of feudalism. The name matters little; the fact that the economic unit ceased to be the petty locality and became the nation is highly significant.

Changes in manufactures. — The changes which occurred in manufactures were due to these great world movements we have been describing in the sense that these movements enlarged the market, led to a demand for increased productivity, and provided new instruments and agencies of regulation and control. As was true of the agricultural changes, much of the progress in manufacturing is to be attributed to forces which were in operation prior to the opening of the modern era. The great forces which came into play at that time merely increased those already in operation.

Changes which took place in the cloth-making industry will serve as a very good sample of what occurred in other forms of

manufacture, for the cloth-making industry was an early and very important form of English manufacture.

The guilds declined in importance. — During the medieval period the manufacture of cloth in England had been primarily for the needs of the town and neighborhood and it had been controlled, as we know, by the guilds. This form of control was satisfactory in the days of the local market. Gradually, however, the position of the guild was weakened.

Many causes contributed to the decline of the guilds. For one thing, the rise of coherent town governments, operating as agents of the national government, meant the transfer of many of the tasks of control which had formerly made the guilds so powerful from the guild to the municipality and to the nation. The guild was thus less able to control any one who might wish to challenge its power. For another thing, the rise of a strong foreign demand for English cloth and the inability of the guild to regulate dealings for foreign markets demonstrated the unfitness of a local agency to cope with national and international problems. Again, even in the days when the guilds were most strongly organized they had found it difficult to keep control of every manufacturer. Always some restless spirit was fighting their monopoly. This difficulty was greatly increased when the government adopted, about 1325, a policy of encouraging foreign cloth-makers to settle in England and carried out this policy, somewhat intermittently it is true, in later centuries. These foreigners did not always become guildsmen. They might settle in towns where guilds were weak or in rural districts which the guilds did not control, and there carry on their crafts free from local supervision. Furthermore, the inclosure movement caused many people to leave the manors and to seek employment in craftsmanship. These persons would carry on their work in suburbs or in the country where such onerous regulations as the seven-year apprenticeship rule did not apply.

It must be admitted that the guilds got into difficulties because of their own foolish actions. They had gained in size and strength, and many of their members had become wealthy,

with the result that they became grasping and arbitrary rather than filled with a desire for service. They made their membership requirements increasingly burdensome. Sometimes they would not accept apprentices unless the apprentices would promise to make no effort to get into the gild after they had finished their apprenticeship. In other cases very large fines or admission fees were assessed upon those who wished to enter. To such an extent did they carry these practices that organizations of journeymen, which were in some ways like our modern trade unions, sprang up to protect the journeyman against the arbitrary practices of the master craftsmen.

Finally, while these various changes were undermining the strength of the gilds, they were dealt a blow from quite another direction. The gilds combined religious duties with their other work and when in 1547, as one event in the Religious Reformation in England, all property devoted to religious purposes was confiscated, the gilds suffered severe financial losses.

The decline of the gilds has a double significance to us. It marked the turning point toward national and even international economic units as opposed to local units, and it freed industrial activity from the customary rules and regulations of a controlling agency dating back to early medievalism. Business was to have a freer hand in meeting the new problems which world expansion brought to it.

A new organizer — the clothier. — The spread of manufactures from the towns into the rural districts in order to escape the supervision of the gilds greatly hastened the development of a new figure in the cloth industry, who came to be called *the clothier*. We do not know exactly when or how he originated, but he seems clearly to have been related to the development of manufacturing for a foreign market and to have been connected with it even before the craftsmen spread through the country districts. Indeed, he probably stimulated this spread. However this may be, once the small manufacturers had thus left the towns, it was obviously impossible for them to follow the

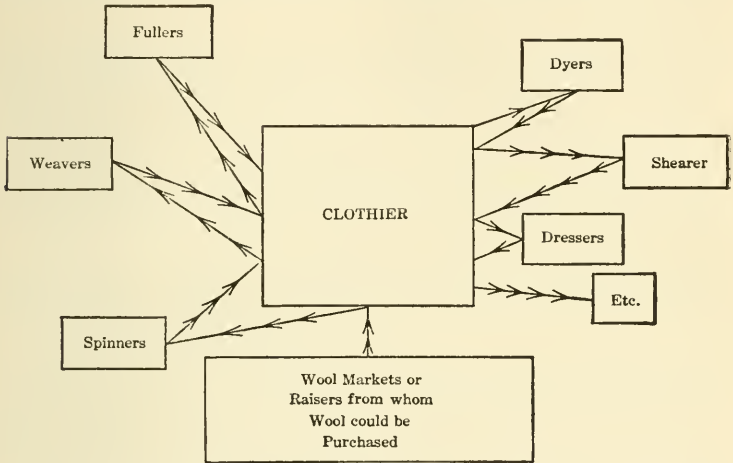
cloth abroad and make sure that it had reached the most profitable market. It was even difficult for many of them to find money for purchasing the raw materials and the simple tools which were used in manufacturing. Then, too, the process of making cloth had become much more specialized, partly as a result of the influence of the specialized immigrant cloth makers.

It is clear that under these circumstances there was an opportunity for some one to take on the function of organizing these scattered specialists into a systematic producing group, and to furnish finances where necessary. The clothiers, who undertook this work in the cloth-making industry, either raised the wool themselves or bought it from the grower or in one of the numerous wool markets. They then delivered it to the various spinners and when the spinning was done carried the yarn to a weaver who made it into cloth. The weaver did not own the yarn or the cloth. He merely worked on it for the clothier. When the weaving was completed the clothier took the cloth to other specialists — the dyer, the fuller, the shearer, the dresser, and so on — all the time keeping the ownership of the product himself and paying each artisan for his work. In some cases, the dependence of the country artisan upon the clothier was especially great in that the clothier not only furnished the raw materials and marketed the finished product, but also furnished the tools with which the artisan worked. We even have records of clothiers gathering several score of workers into one building, furnishing in this case, of course, both tools and building.

Typically, however, the artisans who worked for the clothier were scattered about the countryside working in their own small shops or in rooms of their own homes; hence, perhaps, the name "domestic system." It is easy to see that "the clothier occupied a very responsible and prominent position in the local community. He was an organizer of the manufacture, of the labor, and of the distribution of materials. His shop was a neighborhood, a village and its environs. He was the moneyed man, the paymaster, and the employer of the

whole vicinity. The neighborhood activity and prosperity rested in his hands.”¹

The organization of manufacture of cloth under the domestic system may be illustrated by the following diagram :



ORGANIZATION FOR THE MANUFACTURE OF WOOLEN CLOTH UNDER THE DOMESTIC SYSTEM

Notice the clothier, who retains the ownership of goods, as an organizer of specialists.

The extent of the changes sketched in this chapter may be more readily seen from the following comparative statement.

COMPARISON OF MANUFACTURE UNDER THE HANDICRAFT SYSTEM AND THE DOMESTIC SYSTEM

<i>Under the handicraft system</i>	<i>Under the domestic system</i>
Small-scale industry, small shops ; few people in each.	Conditions were similar.
Mostly tool industry ; small amount of machinery.	Conditions were similar.
Processes of manufacturing few and simple.	Conditions were similar.

¹ Adapted from R. B. Westerfield, *Middlemen in English Business*. Transactions of the Conn. Academy of Arts and Sciences, XIX, pp. 265-279, 296-317.

COMPARISON OF MANUFACTURE UNDER THE HANDICRAFT SYSTEM
AND THE DOMESTIC SYSTEM—*Continued*

Under the handicraft system

Work done in small shops and generally in the home by single worker or by very small groups.

Workers (craftsmen) controlled hours and conditions and place of work and owned own tools.

Worker (craftsman) performed all processes on a given piece of work.

Worker owned raw materials and finished product.

Production for small, local market; relations between producer and consumer quite personal.

Local regulation of business.

Not a wage system, except for journeymen.

Few or no middlemen between producer and consumer.

Under the domestic system

Conditions were similar.

Conditions were similar except that workers were occasionally divorced from the ownership of the tools.

Conditions were similar, though work was more specialized.

Worker frequently divorced from ownership of raw materials and finished product.

Production for wider market (sometimes foreign); relation between producer and consumer less personal.

National regulation of business: Mercantilism. (See p. 120.)

A wage system.

Functional middlemen and specialized middlemen within given trade.

PROBLEMS

1. "There were forces tending to break up the manorial system as early as the thirteenth century. In particular there were: (1) the substitution of money payments for produce and labor rents, (2) the leasing of the manor by the bailiff, the tenants or others, (3) exchange between manor and town, and (4) external relations (notably the crusades)." Show how each of these factors would bring changes in the manorial system.

2. Explain commutation of services. What effect did the crusades have upon commutation of services? How did commutation tend

to change the medieval system of agriculture? Why would a lord ever agree to commutation of services?

3. Do we have several classes in agricultural work in the United States to-day? If we do, name them.

4. In what ways did the Black Death contribute to the break-up of the manorial system? Do you think the break-up would have occurred if there had been no Black Death?

5. What changes would need to be made in a manorial estate to convert it into a sheep run? What difficulties would be in the way?

6. "The lease system was largely one of contract; the old system had been one of custom." Explain. Which was more nearly like our present system? "Farming for profit in England began with the lease system." Is this true? Why had men farmed on the manor? For what do they farm now?

7. If you had been a merchant in the Early Middle Ages and had been making large profits in trade, would you have considered it desirable to invest in land? Would your feeling have been different after the lease system grew up? Explain.

8. Inclosure was clearly beneficial for sheep culture. Did it help in bringing in new methods of cultivating the soil?

9. Report on the discovery and development and use of the astrolabe and compass.

10. What reasons would there be for saying that a trip around Africa in 1497 was a far greater exploit than a trip around the world to-day?

11. Look up "printing," tell something of its invention and of the principal phases in its development, including some description of a modern printing press.

12. What is meant by saying that people's habits of thought and ways of viewing the world will have much to do with inventions and other changes which take place?

13. Why would printing the Bible in English tend to loosen the control of the church over English-speaking people? Look up the

Renaissance in an encyclopedia and report what it was, when it happened, and what it meant to the world.

14. Look in an encyclopedia or an English history for information about Kings Henry VII and Henry VIII of England. Report concerning what these kings did to make the central government stronger, to weaken the power of the lords, and to break the control of the church.

15. Why should improved coinage make trade easier?

16. Why was it better to have taxation, road improvement, and the punishment of robbers in the hands of the central government rather than in the hands of a number of lords?

17. Make a list of five events taking place between 1400 and 1700 that tended to widen the market for English goods.

18. Make a list of influences that tended to break the strength of the guilds. What were Journeymen's guilds and why did they originate?

19. The first inclosure movement meant, in large part, the removal of population from the manors. These people would not be welcomed by the guilds at this time. What became of them? Can you see any connection between this problem and the decay of the guilds?

20. "In the fifteenth century three vital changes take place in the woolen industry: (1) the weaving and allied branches of the manufacture are establishing themselves in the villages and hamlets and isolated cottages over the countryside, (2) the guild association drops asunder in the woolen industry, (3) a new class of entrepreneurs appears — the clothiers — who now control the process of production." What were the chief causes of each of these changes? Where did the country weavers come from?

21. Explain the various functions which the clothier performed in the cloth industry. Should we be justified in calling him a middleman?

22. "Nearly all the functions performed by the modern manufacturer were performed by the clothier." Explain. What functions of the modern manufacturer did he perform?

23. "Under the old system the worker in any craft was not dependent upon others. Under the domestic system the artisan became a dependent." Is this statement true? If so, upon whom? Is the artisan of to-day dependent? If so, upon whom?

24. "The worker under the medieval system differed from the worker of our modern factory in that he owned the implements with which he worked." Is this a true distinction? Did the worker in any degree lose control of the implements of production with the incoming of the domestic system?

25. "Divorce from the ownership of the implements of production puts the worker in a position of dependence." How? Dependence upon whom?

26. "Throughout the domestic system, manufacture, though controlled by the capitalists such as the clothier, remained small-scale manufacture." Is this statement true? Is modern manufacture large or small scale?

27. "The laborer under the domestic system was in a less sure and stable position than he had been under the old gild scheme." Is this statement true? Explain.

28. "The clothier (or other merchants like him) was the moving force in bringing about the new organization of industry." Explain this statement.

29. "The revolutionary element of the Middle Ages was the merchant." Explain what this means.

30. If you had lived during the period we have been studying in this lesson and had had money for investment, what were some of the opportunities that would have been open to you?

31. What was the origin of the wage-earning class of modern England? You have not yet had the basis for answering this question fully at this time. Answer it as best you can with your present information.

32. The manor and the town were local economic units and they met the need of their day reasonably well. To-day we talk of the need of national units and sometimes even of international units. Why?

33. Draw up an outline of the main points of this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 144-150, and Selections, 63-75.

Cheyney, *Industrial and Social History of England*: Chs. 5, 6, and 7.

STUDY VII

THE RISE OF THE MODERN ORGANIZATION OF TRADE AND COMMERCE

PURPOSES OF THIS STUDY :

1. To see some of the causes that brought about a change from the medieval organization of commerce.
2. To see the many new types of business men who took over part of the tasks performed by the early merchant.

Great increases in trade and commerce. — The changes in agriculture and manufacture described in the preceding chapter were very closely related to equally great changes in trade and commerce. Indeed, they were all merely different phases of the development of exchange coöperation, money economy, and production for gain.

The changes in trade and commerce were particularly striking. If you think over the events which marked the opening of the modern era, you will notice that every one of them tended to increase trade and commerce. The first nations to feel the effects of this were, naturally, Spain and Portugal. They had been leaders in explorations and discoveries and accordingly their merchants were the first to open up trade with the new regions. For various reasons, the chief of which was the fact that their previous development had not prepared them for the responsibilities involved, these nations failed to hold their position of leadership and were supplanted by the Dutch. But it proved that the Dutch also were not equal to the task. They lacked strong central power and policy ; they relied too much on favoritism which led to corruption ; their limited resources

did not give them sufficient power to struggle successfully with other nations.

In the hundred years, therefore, between 1650 and 1750, England stepped into the position of commercial leadership of the world, a position which she has held to this day. Her geographical location was such that the opening of the new lands placed her in the center of world commerce; her geographical isolation safeguarded her from foreign invasion and promoted both the development of political strength and the establishment of peace and order so necessary to successful business enterprise. Her merchants and manufacturers had, as we have seen, been developing methods of organization to meet changing conditions, — an experience of great benefit to them in organizing to meet the new world conditions. The central government had grown strong so that it had behind it the entire resources of the nation when it entered the arena of world competition.

The world commerce, whose leadership England assumed, had grown to be very great. In geographical range, the era of colonization had opened most of the world to business enterprise. Oceans had ceased to be barriers, they had become highways of commerce. True, they were not as busy highways as they are to-day, but the commerce of the world was quite large as compared with that of the early medieval period. In that period it is doubtful whether the foreign trade of England for a given year was greater than the amount which could now be carried on a single trip of one of our great freighters. By 1700 it had grown to some sixty millions of dollars, about evenly divided between import and export trade. By 1750, it had grown to over one hundred millions of dollars and by 1800 to over three hundred and sixty millions.¹

While we are impressed by the magnitude of England's foreign trade, we must not forget that it was built upon a firm foundation of domestic trade and manufacture. The English work-shop, the English methods of communication, transporta-

¹ Day, *History of Commerce*, p. 205.

tion, and commercial organization made possible the great foreign trade and at the same time were stimulated by that foreign trade. No definite figures can be given, but there is no doubt that the volume of England's domestic trade was many times that of her foreign trade.

New organization of trade and commerce. — Any story that aimed merely at moderate completeness in its account of the changing organization which cared for this rapidly developing trade and commerce would fill volumes. Our purpose, which is merely that of securing an appreciation of how modern structures emerged, will be served if we omit details and discuss the emergence of certain specialists, specialized institutions, and methods.

When we think of the medieval merchant who sold either in England or abroad, there comes to our minds an unspecialized merchant who fared forth with his pack, his boatload, or his shipload of goods, seeking the people to whom he could sell at a profit. We have seen that he performed a wide range of tasks. He displayed and advertised the goods to the buyers, he furnished the funds for financing his business, he collected the payments, he acted as policeman or soldier to protect himself and his goods, he bore the risks of fire, theft, accident, and loss. The variety of his functions was certainly great.

As new markets were opened both at home and abroad, and the volume of English trade grew, enterprising men began to see that a profit could be made by carrying on certain lines of business which would be an aid to the merchants by relieving them, of course for a payment, of some of their many tasks. These enterprising men specialized in certain functions.

The banker as a functionalized middleman. — A function which was among the first to be taken over by specialists was that of finance. The merchant who wished to load a ship with goods and sail for a foreign port would need to be a rich man to undertake such a venture with his own unaided funds. The same was true of the clothier who wished to purchase raw materials and pay the various artisans who manufactured the

cloth. Both would frequently desire to borrow money, and their cases were typical of the whole business community. This gave an opportunity to the one business man of the community who was most likely to have a supply of money on hand — the goldsmith. This worker in precious metals naturally had a considerable fund of precious metals of his own and naturally he had strong boxes for its safekeeping. These funds were augmented by those of other persons who had surplus cash and brought it for safekeeping in the iron chests of the goldsmith. The goldsmith, of course, agreed to pay this money back when requested. Practice, however, showed that few depositors called for their money at the same time, so that it was safe to loan perhaps three fourths of it out at interest. Of course it was not safe to loan all of it as some of the depositors would come every day or two and ask for part of their money. These loans by the goldsmiths were the beginning of commercial banking, which is the type of banking that is most familiar to-day.

In our study of medieval organization, we learned that it was considered immoral to accept interest in payment for loans. So long as this thought pervaded men's minds, the banking business would obviously remain small and of little importance. Among the other changes which were taking place in the period which we are considering, however, was a new way of thinking about interest. People were beginning to see that it was possible to borrow money, use it for some business purpose which was useful to the whole community, and to make enough return to pay interest on the borrowed money and still yield a profit to the enterpriser. People's thought had changed enough on this matter so that by the laws of 1545 and 1571 it became legal to charge interest for the use of money if the rate was not higher than 10 per cent. Usury is no longer synonymous with the taking of interest. It now means taking interest in excess of the rate permitted by law.

The goldsmith bankers who now were financing the undertakings of merchants and other business men, soon found that

there was other work of the merchant which they could take over at a profit.

When goods are sold, payments must follow. If these payments are made in gold, there is always danger of loss, from robbery, storm, or wreck. Besides, if one is making purchases, it is not convenient to carry gold enough to pay for a shipload of goods, and it is equally inconvenient to carry home a payment in gold when one has disposed of a large cargo of valuable wares. Merchants and goldsmith bankers were not slow in discovering a way to avoid this handicap of gold payment. A merchant in London would, for instance, deposit a considerable amount of gold with a goldsmith in that city. In return the goldsmith would give him a receipt for the amount, with the understanding that he could transfer this receipt to any one else and thus transfer the ownership of the gold that had been deposited. With this receipt safely in his pocket, the merchant would proceed perhaps to Venice and purchase a shipload of goods. Instead of paying gold for the goods, he would ask the seller to go with him to the shop of a Venetian goldsmith. The London merchant would here "sign over" his receipt to the Venetian goldsmith, thus making the Venetian goldsmith the owner of the money which had been deposited in London. The Venetian goldsmith would then pay the Venetian merchant and the London merchant would thus succeed in paying for his goods without carrying any gold with him.

To make payments of this sort possible, only two things were necessary: first, the Venetian goldsmith should have an "understanding" with the goldsmith in London so that he might know it would be safe to accept his receipts; second, the payment of a small fee by the merchants for this accommodation. One might ask how this saved any shipment of gold. Would it not now be necessary for the London goldsmith to ship the gold to Venice? Such a shipment would not be made, however, — certainly not at once. Venetian merchants were also traveling to London to purchase goods. These would take with them receipts or "orders" from the Venetian goldsmith

requesting the goldsmith in London to pay Londoners from whom they purchased goods. Thus the claims of one goldsmith would, over a period of time, come not far from balancing or offsetting the claims of the other. The movement of actual gold necessary to balance the transactions would be only a small percentage of the total transactions.

As time went on and trade made it worth while for more goldsmiths to go into this business, "understandings" which made it possible for transactions to take place in this way, were established among the goldsmiths of all the important cities of Europe. It was not long until the profits in this business, and in making loans, became so large that many goldsmiths forsook their craft work and attended only to the business of aiding merchants in making their exchanges and in securing funds. Thus they became not goldsmiths but bankers, and from these simple beginnings developed a great banking system which now makes it possible for business men to borrow, and for any one to send payments to almost any part of the world with little shipment of specie. The work was so important that some governments set up banks and many governments encouraged individuals to do so.

Functionalized middlemen take on risk-bearing.— There grew up, in this period also, companies which would assume some of the risks involved in business. The guilds with their common funds from which money was paid out to members who suffered illness or from which payments were made to families in which the guildsman had died, practiced a simple form of insurance. Insurance on business ventures, however, seems to have had its beginning in insuring against the risks involved in going to sea with merchant cargoes. In its beginning it was practiced in this fashion. A merchant who wished to send a cargo of goods to a distant market would borrow an amount equal to the value of the ship and the goods. He promised to repay, if the ship returned safely, this sum plus an additional amount called a premium. If the vessel were lost, he paid nothing. Later on this practice was reversed so that, in the modern type of insur-

ance, persons pay premiums in advance whether they suffer a loss or not. Out of the totals of these premiums, which are collected from a great many people, the insurance company is able to pay the losses which fall to some.

As early as 1635 the records show some proposals for establishing companies to offer protection against the risks of fire. It was not until 1667, however, that the first real fire insurance was undertaken in England. Fire insurance at first attempted to protect only against the risks of loss from burning buildings, but later it was expanded to cover risks on all sorts of goods, afloat or ashore, that were in danger of loss from fire. Still later came insurance to protect against financial loss from death, illness, and accident.

To-day there are literally scores of different forms of insurance. The companies which transact this business clearly have relieved merchants and other business men of much of the task or function of carrying the risks of their businesses.

New specialists — carriers and innkeepers. — As the amount of business carried on by merchants increased, a class of business men arose who, for a payment, offered to relieve the merchants of the function of transporting their own goods. These new functional middlemen secured wagons and teams and offered to carry goods on regular schedules between the more important towns. "Wagoners" was the name commonly applied to the men who first went into this business, and there were so many in this line of work by 1700 that it had become quite the practice for merchants to hire their services in conveying goods. Sometimes the chapmen and small peddlers engaged in carrying goods for other merchants, as well as in carrying and trading in their own. The "wagoners," however, took over more and more of the work of transportation, and many farmers also engaged in this work "on the side." They would drive in from the country districts bringing to London and the other larger cities malt, corn, meat, and other country produce and would carry back groceries, coal, salt, wine, iron, cheese, and other supplies for the shopkeepers and small tradesmen of the country.

Not only did the specialists in transporting goods start into business, but other specialists undertook to transport the merchant as well. As early as 1608, a kind of stagecoach was seen in London. Soon they became common in London and were used in many other places also. Before 1700 a regular system of stagecoach service between the important towns of England had been established. The men who went into the



AN OLD STAGECOACH

Compare this illustration of an early American stagecoach with the picture of a modern locomotive on page 117.

business of common carrier for passengers soon learned that their business would be increased by establishing regular times and places for departure and arrival. They, therefore, published and scattered abroad schedules of times and rates, which were, on a small scale, much like the time-tables which we now use in connection with railroad service.

As carriers of goods and passengers increased in number and as the number of merchants and travelers became greater, busi-

ness operations were begun by a new class of specialists who were quite important to ease of trading and traveling. These were the innkeepers. Any one who is familiar with hotels even in the smaller modern cities knows how important the hotel is to the business travelers who come to the city to buy or sell goods. The usefulness of such establishments was early recognized as English business grew, and innkeeping became a common form of business.

Specialists take over the function of information carrying. — One of the handicaps which we have seen retarding the activities of the medieval merchants was the difficulty of conveying information rapidly and without making an actual journey. As early as 1638 this difficulty was greatly relieved by the establishment of the outlines of a post-office system which provided for the carriage of private letters at fixed rates. There had been some work done by the English post office even before this time, but the speed at which letters traveled was now increased, and the financial affairs of the post office were so arranged that the service became regular and certain. Besides carrying information, the postal service carried light wares, and this aided merchants in somewhat the same way as the parcel post system of to-day.

Means of communication in business matters received a tremendous help when in 1621 the first *Weekly News* appeared. This was the beginning of newspapers in England. It is said that in 1658 the first business advertisement appeared in a newspaper. After this beginning, however, information regarding all sorts of goods was given to possible purchasers through this medium. The merchants found in the newspaper, and in the postal system, agencies which relieved them of much of the burden of gathering and disseminating information.

The storage function was taken over by specialists. — The changes which we have been describing brought still others with them. No longer did the merchant find it necessary to look out for the storage of his goods while they were awaiting shipment at a port, or while they were awaiting other transfer or sale. Here also, individuals saw that profit could be made

by relieving the trader of part of his responsibility and built storage-warehouses adapted to various kinds of goods at the places where there was a need for them.

The merchant was relieved of the protection function. — Although we cannot follow all of the political changes which were taking place in England during this time of economic change, we must keep in mind that the central government was constantly growing stronger. As the king gained power, better and better order was established throughout the kingdom. During this period, too, the navy was growing in size and strength and was becoming powerful enough to make the sea comparatively safe for merchants. Thus the task of protecting himself, which, earlier, had been among the important duties of the merchant, was gradually taken over by the government and given to the soldier, the sailor, and the policeman. Through his taxes, of course, the merchant helped pay for this service much as he paid for the services of insurance men, warehouse keepers, carriers, newspapers, coachmen, and the various other specialized middlemen who came to his aid.

A summary view. — The manner in which the functions performed in trade by the medieval merchant have split up among groups of specialists can be made clearer by the following comparative statement.

<i>Functions performed by the medieval merchant</i>	<i>Functions now performed by specialized middlemen</i>
Transporting	Railroads, ship lines, etc.
Protecting	Police, army, navy.
Insuring	Insurance companies, etc.
Storing	Warehousemen.
Advertising	Advertising agencies, newspapers, and other media.
Selling	Special salesmen.
Gathering information	Trade papers, government agencies, etc.
Financing	Financial institutions.
Etc.	Etc.

Specialization of middlemen within a given trade. — The rise of the functional middleman described above was only one phase of the specialization which occurred. Another differentiation took place within the various trades. A view of the specialized traders within the woolen industry will serve as a good sample.¹

“The *broker* was an agent or broker of a manufacturer or exporter or big wool-merchant or jobber. He made a farm-to-farm canvass and bought wool. He either packed it up himself or employed a specialized class of wool-winders or wool-packers. The *jobber* or *merchant* bought for cash large volumes of wool seasonally; he owned warehouses for the storage of his purchases; he sold to clothiers and manufacturers on credit, and in such parcels as they needed.

“The *wool stapler* assorted wool according to the character of the material. He had large warehouses and required a great capital. But his special and distinctive function consisted in breaking and assorting wool, making it into sortments fit for the manufacturer. Without the stapler, the clothier was under the necessity of buying his wool in the fleece, and unless he could work up all sorts of wool, a thing no clothier could do to any advantage, he suffered a loss of those parts not used. The *yarn merchant* got wool from the wool buyer into the hands of the spinners in their localized districts and then collected and sold the yarn to the clothiers. He commonly combined the functions of the wool stapler (viz., as sorter, kember, washer, scourer, and trimmer) with that of the yarn merchant proper.

“The *clothier* has been described in another connection. The clothiers of all England sold mostly through London whose great woolen market was an ‘exchange’ called Blackwell Hall. The *factors* established themselves in Blackwell Hall about 1660. The first factors were likely some clothiers or cloth workers with whom other clothiers had left their residue of cloths from one market till a later market. The prime service of a factor is to facilitate exchanges; buyers and sellers are brought together through specialized representatives; wide correspondence and connections swell the number of buyers; there is a broader, steadier market.

¹ This statement of the commercial organization in the woolen industry is adapted from R. B. Westerfield, *Middlemen in English Business*. Transactions of the Connecticut Academy of Arts and Sciences, XIX.

“The *draper* was in the earlier centuries both retailer and wholesaler of woolen cloth. The retail function became less and less his, and was given over to the merchant. By the middle of the eighteenth century he was a typical wholesaler. As such he had connections (a) with the clothiers or the factors, (b) with the merchant importers and exporters, (c) with the provincial wholesalers, and (d) with the retailers of London and other towns and cities. *Manchester men* were traveling merchants of the northern manufacturing section who bought mainly at the great cloth fair at Leeds. They sold wholesale to shops, warehousekeepers, and to country chapmen.

“The *chapmen* bought their goods from wholesale tradesmen of the cities or from the Manchester men, and traveled on foot with packs on their shoulders or with horse and panniers, or with horse and cart or wagon.

“Five methods of marketing abroad were devised by the merchants ; (a) *travelling merchant*, (b) *supercargo*, (c) *factor*, (d) *foreign resident commission house*, (e) *branch house*. This is roughly the historical order by which they rose to importance.”

Accounting systems come into use. — It is not hard to see that in the increasing business which we have been describing, much must have been guess work and chance unless the various business men were able to guide their plans with some system of calculation and accounting. The machinery for calculating was borrowed by England from Italy. In Italy commercial arithmetic was developed and was quite commonly in use during the twelve hundreds. The guilds in ancient times had kept their records in Latin and some of them were very loath to abandon the use of this language for all official documents. But Roman numerals are not convenient for calculation. If one tries to multiply, for instance, LXXXVIII by XLVII it is easy to see the difficulty which lay in the way of figuring and keeping accounts while such numerals were the only ones known. Between twelve and thirteen hundred, however, the Arabic numerals became quite common in Italy, and were even more common in the next century. During the two hundred years that followed, the practice of calculating in Arabic figures spread to England and other parts of Europe, so that during the period

which we are studying business men had this instrument of calculation as an aid to their plans.

Business plans of any large size cannot be carried accurately in one's mind, nor can the records of what has happened in business be wisely intrusted to memory. Therefore, if business men wish to record and classify information which they may use in conducting their business more wisely in the future, it is necessary that they shall "keep books." From this need has come our whole science of bookkeeping and accounting. This invaluable help to business men also came into wide use during this era of great business change. Accounting, like commercial arithmetic, appears to have had its beginning in Italy. As early as 1279-80, the records of certain of the Popes were kept by simple bookkeeping record, and double entry bookkeeping was practiced not much later. Very good records have been found which were kept by Venetian merchants early in the fourteen hundreds, and from Italy came the first textbooks which carried a knowledge of bookkeeping and accounting to the business men of other lands.

Other financial and organizing aids. — Even in the medieval period it had not been uncommon for the limited funds of individuals to be multiplied by several men putting their money into a common venture. Such an organization came to be called a partnership. It not only increased the resources available for a given enterprise; it also lessened the amount of risk for each individual concerned to the extent that any loss which might occur would be distributed among the partners.

During the period of expanding trade which we are now studying, the partnership came to be used more and more. This period also saw the development of the great trading companies. In our discussion of the merchant adventurers we saw the reasons for the use of the company organization in foreign trade. They now came into their own. The accompanying map of the spheres of trade of English commerce in the early seventeenth century shows that the area open to trade for Englishmen as individuals embraced only Spain, Portugal, and

France. Trading with the rest of the world must be carried on by means of these great companies.

Some of these companies were the so-called regulated companies about which we already know. Others were joint stock companies. Later we shall study the various types of business organizations, so we shall not stop here to study the details of a joint stock company. It will be sufficient for us to know that they were much like a partnership, excepting that *many* people contributed their funds to a common enterprise, in this way making it possible to accumulate very large amounts of money for a single venture and to distribute the risks widely.

The gain spirit. — The account given in the last two studies of the break-up of medieval organization shows that men had become possessed of a spirit very different from that which moved them during the time of the guilds and manors. Under the manorial system, men worked merely for subsistence; that is, they produced food and other necessities for their own livelihood. In the towns the guildsmen did, it is true, produce for a market, but it was a very small market and they could not hope to sell many goods or to accumulate large amounts of money. Furthermore, channels of trade and methods of work were fixed by custom, and by guild rules which were largely statements of custom.

All this is changed in the period we are now studying. The old system, stable and customary, gave way to one of change and opportunity. There came into manorial life production for the market, sheep-raising as a business enterprise, and risk taking through a lease system. There came into town life a great change due to expanding foreign and domestic trade. The conditions of this wide market were such that men had increasing opportunity to gain not merely a comfortable living but to amass riches. The transition was not yet complete — indeed it is still going on to-day — but economic activity was guided more than before by the spirit of gain. More and more, economic activity became business for profit.

PROBLEMS

1. List again the events marking the opening of the modern era and show how each affected commerce.
2. "England was once on the circumference of the world's trade. The geographical discoveries placed her at the center." Explain. What other causes contributed to England's supremacy in commerce?
3. Should you expect that domestic commerce (that is, trade within the country) would be larger than foreign commerce in the United States to-day?
4. When were English colonies planted in America? Would their establishment be likely to increase England's commerce?
5. Explain how the goldsmith relieved the merchant of the necessity of financing his operations.
6. Explain how the goldsmith relieved the merchant of the function of transporting gold for payment. If Venetian merchants purchased a hundred thousand dollars' worth of goods in London in 1500 and London merchants purchased ninety thousand dollars' worth in Venice and ten thousand dollars' worth in Florence in the same year, what plan of payments would you suggest to keep the gold shipments as low as possible?
7. Take a bank check and explain how the process of making a payment to another person with a check is similar to the process devised by the goldsmiths.
8. Account for the change in feeling regarding the payment of interest during the period which we have been studying. Would large-scale borrowing have been possible without interest payment?
9. Find out from a bank the rate of interest which is charged for loans to business men. Find out if the rate changes from time to time.
10. Explain the meaning of the word "premium" as it was used in connection with early insurance. Why would insurance lend a great stimulus to trade and other business undertakings?
11. Do you suppose that the "wagoners" still exist in England? If not, what has taken their place? Are there any "wagoners" in the town in which you live? If so, are they called wagoners?
12. Should you consider the stagecoach with its regular schedule a great advance over medieval methods of travel? Make a list of the "common carriers" upon which we rely for transportation.

13. If it were not for common carriers, how would individuals get about from one place to another? Why call a railroad a "common carrier"?
14. Get information from the encyclopedia concerning the development of the post office in England and America and report to the class.
15. What are the chief means of carrying information upon which business men rely in modern times?
16. Why is it desirable that common carriers and agencies for carrying information should have regular time schedules?
17. Find out from some manufacturer how seriously his business would be affected if all means of communication from outside business connections were cut off for two weeks.
18. Do the business men of your town regularly use the newspapers as means of giving information about their goods? How did the medieval merchant perform this function?
19. What other agencies besides the newspapers have developed for giving information of this sort? What would be meant by calling these agencies functionalized middlemen?
20. What is meant by referring to banking, insurance, and transportation as functions of specialized middlemen? When we receive a bicycle manufactured in a distant state do we have to pay these functional middlemen for their services? Is it fair that we should?
21. Explain how a partnership increases the amount of money available for a business undertaking. Are business partnerships common in your town? Do you know of any?
22. In what way would an association lessen the risk which an individual took in a business enterprise?
23. How do you account for the fact — recall your study of medieval commerce — that Italy was the "cradle of commercial arithmetic"?
24. "A spirit of reckless adventure and one of careful and laborious calculation were necessary to the new type of business enterprise which was developing in the period we are studying." In what ways was there more adventure in business in this new period than during the medieval period?
25. Why is careful calculation necessary to business success? What agencies help business men to make their calculations?

26. "The regulated company was used for colonization as well as for trading." Name two such companies connected with American colonization. Refer to an American History if necessary.

27. Review the material on the merchant adventurers and tell why it was to be expected that England's foreign trade should be largely in the hands of great companies during the period of its development.

28. Consult an encyclopedia and report on the powers and activities of the West India Company or some of the other English companies. In what ways would these companies increase the power of the nation?

29. Why were great monopolistic companies not necessary for English trade with France, Spain, and Portugal?

30. What is your understanding of the term "the gain spirit"? Why did it not develop as rapidly during medieval times as later? Do you think it exists to-day?

31. "The new specialists — the functional middlemen — came as a result of the new gain spirit and the new opportunities for profit which existed." Can you show that this statement contains truth?

32. What reasons can you give for the fact that specialized functional middlemen did not come into existence in early medieval times?

33. "The first essentials of commerce are personal freedom and the security of property." Does this seem to you a true statement? Were these elements present in England in 1300? In 1700?

34. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 144 to 152, Selections 76-81.

Cheyney, *Industrial and Social History of England*: Ch. 7.

STUDY VIII

THE INDUSTRIAL REVOLUTION: THE RISE OF MACHINE INDUSTRY

PURPOSES OF THIS STUDY:

1. To see how power-driven machinery came into use in manufacturing and trade.
2. To study some of the far-reaching effects of the incoming of machinery.

The extent of the earlier changes must not be exaggerated.— In the preceding lessons our attention has been centered on changes which had been occurring. These changes were undoubtedly important, but we must not overestimate them. They merely prepared the way for much greater changes; they were significant as forerunners, as successful experiments, rather than as complete accomplishments.

The new methods and organization schemes in agriculture, in manufacture, and in commerce were far from fully occupying the field in 1750. Agriculture was still carried on mainly with primitive tools and by customary methods. For example, rotation of crops and the use of turnips and artificial grasses had been practiced only by the more advanced cultivators. Perhaps half of the cultivated land of England was still managed by the open field strip system, although, of course, the old feudal classes had long since disappeared.

A similar situation existed in manufacture. No matter what industry of 1750 we might study, we should find that the tools and processes were, compared to the ones with which we are familiar, very simple and inexpensive. Iron was melted

in small furnaces which were heated only by burning charcoal. The draft of air, needed in smelting to intensify the process of combustion, was furnished by a large hand-made bellows operated by men or by oxen. Nails were made from iron rods which had been forged in small blacksmith shops. They were hammered out by hand on anvils and cut to proper length with chisels. Soap was produced by boiling wood ash in small kettles, together with sheep's tallow or other fat. Wood was used as a fuel for this process and the elements were stirred and mixed with a hand ladle.

Commerce, too, great as its progress had been compared with that of the time of the manor, was primitive compared with modern trade. Intercourse between distant points, either by land or by sea, was still difficult. On land the roads were very bad; on sea one had to rely on slow, small sailing vessels. The organization of commerce which we have seen growing up did not fully occupy the field. Many non-specialized, non-functionalized merchants were still able to hold their own.

But if industry and trade in outward appearance still bore largely their medieval aspects, a tremendous difference was soon to be brought about.

Conditions ready for a revolutionary change. — It is frequently the case in human history that long periods of slow preparation set the stage for a most dramatic change. Since 1750 such a dramatic change has occurred. Various factors combined to make possible such a rapid, tremendous, and far-reaching change, that we speak of it to-day as the In-

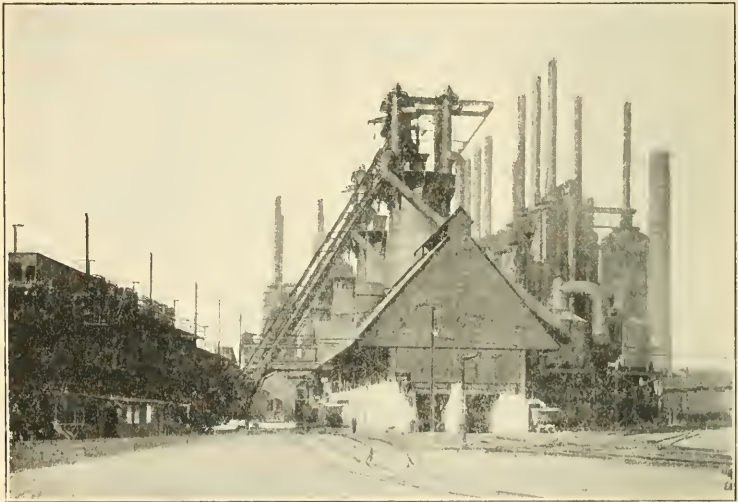


From Chapin's *Social Economy*, Century Co., by permission of author and publishers.

MEDIEVAL BLAST FURNACE

Notice the bellows and the small size of the plant.

dustrial Revolution. Power-driven machinery, operated in great factories, became the method used to produce many of our want-gratifying goods. The significance of this fact is so great that we shall spend the rest of this book in attempting to understand it. Meanwhile, all of us know about the factory system and machinery in general terms and are accordingly able to assume its presence while we look at the factors



MODERN BLAST FURNACE

Such a plant as this puts to practical use the contributions of chemistry and physics. Compare with the illustration of a medieval blast furnace on the preceding page.

which history had brought together in 1750 and which made it possible for these new methods of making goods to come into use with such revolutionary quickness.

Our previous study enables us to state these factors briefly. To begin with, great events had led to a world market for goods made in England. The simple processes and the small shops of English manufacturers could not produce goods fast enough to satisfy the demand. Masters and their journeymen

worked early and late ; the merchants who sold the wares abroad tried many schemes to make production more rapid ; scientific societies offered prizes for the invention of better tools, but in spite of these efforts the production of goods in the small workshops lagged behind the demand in the markets.

If the expanded market called for increased productivity in English shops, the students who had been working in advanced mathematics, and the scientists who had been experimenting in physics, chemistry, and other natural sciences had found principles and made discoveries that could be used in practical ways for producing goods. More and more the discoveries of the student were applied in shops and factories. Perhaps few living in that day realized the significance of science to production, but to us mechanical engineering, chemical engineering, metallurgy, and ceramics, some of the new forms of knowledge coming from scientific study, are familiar terms. Science was beginning by 1750 to aid man in his process of active adaptation.

Looking back, we realize that large investments would be required to conduct industry on a factory basis. For this, too, past events had provided. The profits from wool growing, from foreign trade, from the shipping industry, and from various other expanding businesses, had developed considerable funds. These funds were in the hands of "business men." They were not owned by medieval kings or ecclesiastics who would expend them in better living, in war, or in the construction of cathedrals. These funds were owned by business men and would be made available only for profitable investment. Their owners were eagerly seeking it. Furthermore, financial institutions (banks) had come into existence as aids to the business man.

We see, too, as we look back, that the changes which had occurred in the organization of commerce and manufacture had provided mechanisms and devices for conducting operations on a larger scale. The functionalized middleman, the specialist in various lines, the partnership, the joint stock company — these and many others had been tried, had proved their worth,

and had demonstrated their applicability in a larger field. In this connection we must not forget the various communicating and computing aids which had been made available.

In England, the political situation was a favorable one. England was the acknowledged leader among commercial nations and her government was such as to leave the individual a relatively free hand in industrial enterprise. The decline of the guilds meant the shaking off of hampering local restrictions. As we shall see later, there were few national restrictions which were really embarrassing.

And Englishmen's minds were prepared for the new régime. The grip of medieval custom had been loosened. Because things had always been done in a certain way was no longer a good reason for continuing thus to do them. Imagination, experimentation, and reason came to the front, and this new rationality accepted the gain spirit as its guide.

A revolution in agriculture. — The change was revolutionary in agriculture, in manufacturing, and in trade. In agriculture the period of introduction of new methods and experimentation, which we have described earlier (see p. 76) was followed after 1750 by a period of widespread application.

“The raising of turnips and other root crops spread from experimental to ordinary farms so that a fallow year with no crop at all in the ground came to be almost unknown. Clover and artificial grasses for hay came to be raised generally, so that the supply of cattle forage for the winter was abundant. New breeds of sheep and cattle were obtained by careful crossing and plentiful feeding, so that the average size was almost doubled, while the meat, and in some cases the wool, was improved in quality in even greater proportion. . . . The general improvement in agricultural methods was due, not so much to new discoveries or inventions, as it was to the large amount of capital which was introduced into their practice. Expensive schemes of draining, marling, and other forms of fertilizing were carried out, long and careful investigations were entered upon, and managers of large farms were trained in special processes by landlords and farmers who had the command of large sums of money.”¹

¹ Cheyney, *Industrial and Social History of England*, pp. 216-217.

When we see what happened in manufacturing, we shall understand how the revolution in agriculture contributed to that in manufacturing by making it possible to feed masses of factory workers in factory towns.

It is almost unnecessary to point out that the old open field system did not lend itself to these new agricultural methods. As a consequence, inclosures were again stimulated (1760-1820) — this time not only for sheep raising but also for the promotion of tillage. Naturally, the methods used in separating tenants from their holdings were different from those of the earlier inclosures, but the consequences to the tenants were not greatly different. Even though their rights were purchased, their lack of training in financial matters and their inability to compete with the large-scale scientific farmers quickly resulted in their losing control of the land. Large farms took the place of small ones and the small tenants had no choice but to become farm laborers or to join the constantly growing propertyless classes of the factory towns and thus contribute to the labor supply so needed by the factory system. Few small tenant farmers were left. The leading agricultural classes became landlords, large tenant farmers, and agricultural laborers.

A change in manufacturing methods. — The story of what happened in manufacture can best be told by describing the changes in the manufacture of cotton cloth, bearing in mind always that corresponding changes were taking place in other lines of manufacture. Interestingly enough, the pressure of the world market upon production in England is paralleled in cotton cloth-making by the pressure of one process upon another.

The raw material used in making cotton cloth was, of course, cotton almost as it came from the cotton plant. Only the seeds had been removed. When it reached the manufacturers it was merely a tangled mass of cotton fibers. The first step was to straighten out these fibers so that they lay parallel. This was accomplished by "carding" or brushing and combing the

fibers with stiff brushes called cards. These implements were operated by hand.

The next step was spinning. This was done by drawing out these parallel fibers into a loose slender string which was at the same time twisted so that the fibers adhered to one another and a cord or thread was formed. The spinning was carried on with simple hand or foot-power spinning wheels, in the operation of which the fibers were drawn out by hand and simultaneously twisted by a whirling device called a flyer. When the fibers had been thus spun into thread the process of weaving remained. This work was performed on hand looms. The "warp" threads were first stretched across a wooden frame and by means of a large wooden needle, which was called a shuttle, the "woof" threads were woven horizontally across them. After the cloth was woven it was often bleached by a slow process, and if a figured cloth like calico was desired, the color was stamped on with hand dyes.

All of this work was slow and tedious, but spinning was slowest of all. The rapid weaver could use the yarn or thread furnished by six spinners. In 1738 an invention called the *flying shuttle* increased the speed with which weavers could work and made men who were interested in cloth manufacturing more anxious than before to improve the methods of spinning. The improved weaving process thus put pressure for improvement upon spinning.

In 1764 one of the small manufacturers of England, James Hargreaves, a master weaver, made a great invention. He devised and constructed a machine with which one man could spin eight threads at the same time. In honor of his wife, Hargreaves called this machine the *spinning-jenny*. Other workmen soon made such improvements that jennies spinning thirty threads at a time came into use. Only five years later, in 1769, Richard Arkwright took out his first patent for a spinning machine which would not only make a number of threads at the same time but would spin them much more rapidly than even the spinning jenny. Arkwright's machines had been in

use only a few years when Samuel Crompton, another weaver, combined their good qualities with those of the spinning jenny and created, in 1779, the machine called the *spinning mule*. It spun a finer cotton thread than could be spun by the old spinning wheel and made possible the manufacture of muslin cloth.

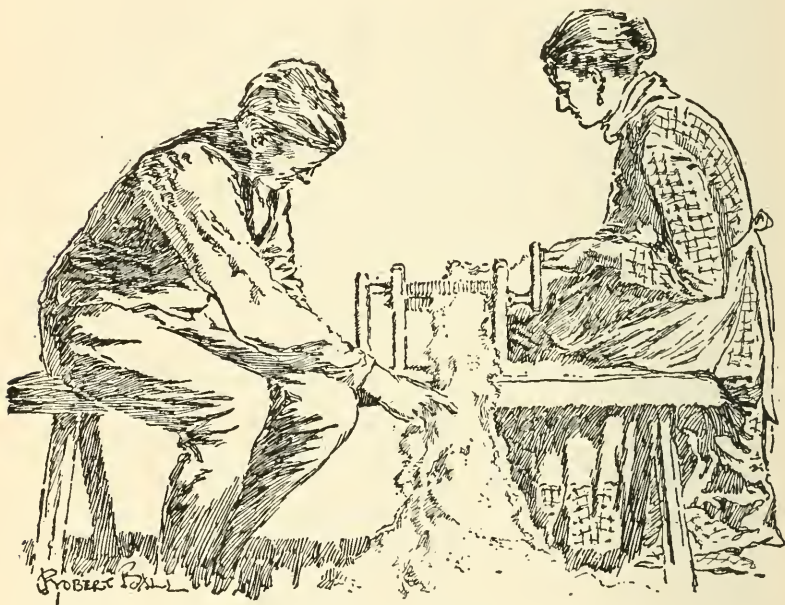
These great advances in spinning methods stimulated invention in other parts of the cloth-manufacturing process. A machine for carding now came into use, a "printing cylinder" was invented with which calico could be stamped a hundred times faster than before, and the use of chemicals replaced the old methods of dyeing cloth. Naturally a great deal of effort was spent to improve the practice of weaving. The industry did not wait long for an improvement in this work. In 1787, a loom was patented which could be operated by water power or steam, and which could weave cloth at a speed unthought of before that time. The process under pressure now became the supplying of the raw cotton.

The power loom had hardly been perfected when in 1792, Eli Whitney, an American, invented the cotton gin. When cotton is picked from the plant the seeds adhere to the fiber. Before the invention of the gin, one man working with hand tools could remove the seeds from four or five pounds of cotton a day. With the new machine one man could, in a day, clean a thousand pounds of cotton. This invention made it certain that the new machinery of the cloth manufacturers would be supplied with raw material.

These sudden inventions were paralleled by others. — If we notice the dates at which these new machines appeared, we can see how suddenly the great changes came in the methods of making cloth. But these were not the only changes that were made in this time of industrial revolution. For years scientists and inventors had been experimenting in other matters, many of which came to have a close relation to cloth making. Their experiments with steam were so successful that in 1781 the manufacture of steam engines was begun. Very rapidly

steam engines were put at work driving the new cloth-making machinery.

These changes in the methods of manufacture would have come far less rapidly had it not been for a greatly increased ability to secure coal. Coal miners in England had been se-



WHITNEY'S COTTON GIN

The cotton was separated from the seeds in the little hand mill being turned by the wife.

riously hampered by water in the mines and had been working for a long time to improve the method of pumping. The first practical use to which the steam engine was put was in this work of pumping out mines and this led to a great increase in the output of coal. The safety lamp, invented by Sir Humphry Davy in 1815, further increased production. These and other improvements in mining methods made certain the fuel supply necessary for creating steam power.

The implements of the old domestic manufacturers were very largely made of wood, but stronger material had to be used when the power-drive came into use. The steam engine itself must also, of course, be made of metal and these conditions increased the demand for iron and (later) steel production. To smelt iron in the old-fashioned small furnace heated with charcoal demanded a supply of wood. But the amount of wood available in England for charcoal had been almost exhausted and the iron industry would have been in a sad plight were it not for the fact that during this same period of change there also was put into operation a furnace which could burn coal as a fuel for smelting iron. This furnace was patented by Roebuck in 1762. It was such an improvement over the old charcoal furnaces that the production of iron increased by thousands of tons per year. Iron became cheaper and more plentiful and replaced wood in many machines.

The factory system. — But these new inventions and new methods brought other changes. The new machinery required a location where water power was available or to which coal could be readily transported; also, this new machinery, built of iron, and large enough to demand a power drive, was far too expensive for the domestic artisans to buy for their own use and was altogether too large to be employed in their homes and little workshops. Men who had made money, either as organizers of the clothier type or in commerce, were the persons who, either alone, or in partnerships, or in joint stock companies, or in corporations, were able to purchase the new machines and construct the factories. Into these factories, under one roof, with regular hours of work determined by their employers, the dispossessed tenants from the agricultural districts, the poorer artisans of the towns, and often the women and children of their families were collected to become "factory hands" or "mill workers." This was the beginning of factories and factory production of goods as we use those terms to-day.

What took place in cotton-cloth manufacturing is only an illustration of the changes that occurred in other industries.

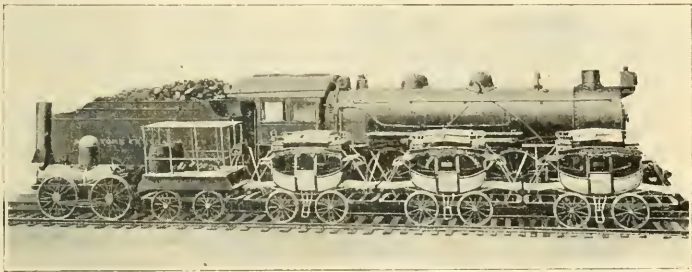
The kettle of the country soap boiler gave way to a long chemical process; the anvil and chisel of the nail maker were replaced by "steel mills"; the village potter found that the machinery of the "potteries" or pottery factories made his hand tools useless. In almost every industry and trade, machinery took the place of tools. This machinery was bought and set up in factories by capitalists and the old artisans and their helpers had little choice but to become the employees of the men who owned it. The machine has "harnessed the forces of nature for the use of man," as for example by harnessing the expansive power of steam, and has made possible, thereby, a great increase in production.

Machine industry and the growing market.—When one reflects on the great increase in productive capacity brought about by machine industry and the factory system, it seems as though the market would certainly have been sated. It so happens, however, that for the period of a century, great as was the expansion of productive capacity, the expansion of the market was even greater.

It is interesting that this expansion of the market was largely due to the introduction of machinery and scientific methods into transportation and communication. This movement began with road building, Parliament passing more than four hundred and fifty acts for road improvement between 1760 and 1774, including a law which organized and systematized the road building of the whole nation. The great road builders of that day, such as Telford and Macadam (note the macadam road of to-day), wrought as much change in road building as did the inventors in manufacturing. England also made great improvements in this period in internal water transportation. She improved and widened her navigable rivers, and then connected and extended them by canals. Eventually these waterways provided a fairly complete system of cheap transportation for goods.

The road building and canal period was followed by the application of steam to transportation and science to communication.

In water transportation, an American inventor, Robert Fulton, led the way by inventing the steamboat in 1807. This was followed in 1819 by the first transatlantic steam voyage. From that time certainty, regularity, safety, and large-scale operations began to characterize ocean transport. In land transportation, the year 1825 marks the building of the first successful locomotive, and the beginning of the development of the railway net, not only of England but of the entire world. Relatively soon, also, came the telegraph, the ocean cable, the telephone, and



Courtesy New York Central Railroad

DEWITT CLINTON COMPARED WITH MODERN LOCOMOTIVE

In the pygmy DeWitt Clinton, one of the earliest American locomotives, water was supplied from the barrels shown in the picture. Sparks rained on the passengers.

the wireless — later manifestations of science and machine industry.

These improvements in transportation and communication paralleled and, indeed, were largely responsible for a very real “opening of the world for the use of man.” The earlier period of colonization had, after all, merely touched the circumference of the new lands. It was the nineteenth century which witnessed the settlement and development of our great middle west, the largest market for manufactured goods that the world has ever seen. It witnessed also the development of South America, Australia, Africa, China, and Japan. These facts make it easy to understand why the nineteenth century also saw the greatest increase of population the world has known, — a population

with an alert, intellectual outlook, rapidly expanding wants, and ability to pay for goods with which to gratify them.

The second phase of the Industrial Revolution. — With such a rapidly expanding market for manufactured articles, it is not surprising that the demand for ever-increasing manufacturing power continued. Partly because of her advantage of an early start, partly because of her geographical position, partly because of her favorable economic and political organization, partly because of a certain bent of mind of her people, England took the lead in developing the “capitalistic” method of production. This lead was soon followed by others. America, Germany, France, Italy, Austria, Japan, and others now make goods of all sorts in factories by machine methods.

A turning point was, however, finally reached. By the last quarter of the nineteenth century, there had come a checking of the rate of increase of the world's population and an approach to the completion of the opening of new territories. By that time, also, thanks to our schools of technology, — our engineering schools, — and the other organized agencies for applying science to manufacture, the productive capacity of the world was tremendous. Under these circumstances manufacture began to outrun the market. This is sometimes called the second phase of the Industrial Revolution. It is marked by efforts at market extension comparable to the earlier efforts for increased production. Men are constantly studying new ways of selling goods; wares are advertised more widely; salesmen are trained to become more skillful; articles are made more attractive; and the “capitalistic” nations of the world have become interested in further development of colonies and in the establishment of favorable trade relations.

A comparison of manufacture under the domestic system and modern capitalism. — The series of changes which we have been studying in this lesson, coupled with those which were described in the break-up of the medieval system, are often spoken of as the “incoming of capitalism.” Capitalism is one name applied to our modern economic organization, probably

because capital goods, such as machines, play so important a part in it. The following comparison of manufacture under capitalism and under the domestic system shows that the use of capital goods is only one of many phases of capitalism. It hints also at the origin of many of the "problems" of our present economic organization.

Under the domestic system

Small-scale industry.
 Mostly tool industry; small amount of machinery.
 Processes of manufacturing an article few and simple.
 Work done in small shops and generally in the home by single worker or by very small groups.
 Workers controlled hours, conditions, and place of work.
 Workers generally owned own tools.
 Worker carried on fairly large number of operations, though not always as wide as under gild system.
 Wage system, with wages determined merely by local conditions.
 Production for gain; for fairly wide market.
 Relations between middlemen (*e.g.* clothier) and workers personal.
 Individuality in production still present.

Under modern capitalism

Large-scale production.
 Machine industry; technology present in many ways.
 Processes of manufacturing an article many and complex.
 Work done in factories by large groups of workers.
 Hours, conditions, and place of work controlled by manager. At most, workers can bargain with him on these matters.
 Workers divorced from ownership of tools.
 Worker highly specialized, performs one small operation over and over.
 Wage system, with wage often determined by world competition.
 Gain spirit more intense; market is world-wide.
 Relations impersonal; manufacturer knows little of his employees.
 Standardized, mass production according to design.

Changes in governmental control of business. — The changes which we have been describing in this lesson and in the preceding

lessons were accompanied by changes in the relation of government to business activity. Under the handicraft system, control and supervision of industry were mainly local, mainly gild control. As the domestic system crept in, the guilds lost their hold; and as the gild system weakened, the grip of the national government grew stronger. Gradually the national government came to regulate the major part of the business affairs of the nation, doing so in the interests of the development of national strength. For example, certain industries, such as farming, were encouraged in order that the nation might be self-sufficing in time of war; certain trade regulations were passed in the hope of weakening other nations.

This movement, which was at its height from 1500 to 1750, has been called mercantilism. The detail into which the regulations went seem quite surprising to us to-day. Rules were passed concerning the making of cloth, the pouring of candles, the manufacture of barrels, the preparation of leather, the making of pins.

“In every quarter and at every moment, the hand of government was felt. Duties on importation, and duties on exportation; bounties to raise up a losing trade, and taxes to pull down a remunerative one; this branch of industry was forbidden, and that branch encouraged; one article of commerce must not be grown because it was grown in the colonies, another might be grown and bought but not sold again, while a third might be bought and sold but not leave the country. Then, too, we find laws to regulate wages; laws to regulate prices; laws to regulate profits; laws to regulate the interest on money; custom house arrangements of the most vexatious kind.”¹

In external trade, the best known of the English regulations were the Acts of Trade and Navigation. These acts looked toward limiting in the colonies the growth of industries which would seriously compete with English manufactures and toward giving English vessels a monopoly of the carrying trade. Although they were really not very harmful to the American colonies, the Acts came to be administered in an irritating

¹ Adapted from H. T. Buckle, *History of Civilization in England*, I, pp. 201-203.

way and they constituted one of the causes of the American Revolution.

Such governmental supervision of industry was accepted as a matter of course during the rise of strong central governments. The time came, however, when it was first questioned, and then rejected. It will help us to understand how this came about if we bear in mind that, after all, the strict rules and regulations were not very strictly enforced or very fully obeyed. The scattered locations of the domestic system of manufacture made it difficult for the central government to carry out its rules and, in foreign trade, smugglers found it relatively easy to evade the English navy. Then, too, it happened that some of the more important regulations did not apply to new industries, such as cotton manufacture, and the example of the unhampered growth of these new industries furnished a powerful argument against the system of restrictions.

More significant still, a new philosophical point of view came to be taken (especially by a group of French writers) in the eighteenth century. It can best be described as a searching for greater liberty, "a revulsion against interference with personal freedom of action, a disinclination to be controlled any more than was absolutely necessary, a belief that men had a right to be left free to do as they chose so far as freedom was practicable."¹

On the positive side, this revulsion against interference appeared as a belief that there is a natural order and "natural laws" which no government should attempt to violate, and that in this natural order the greatest good would result from letting each individual follow largely his own self-interest. The significance of this new point of view is shown by the fact that our American Revolution and the French Revolution are considerably indebted to it for their ideas and ideals.

In its application to the business world, this body of thought — this "individualism" — became known as the *laissez faire* (meaning "let alone") theory. The idea was, of course, that

¹ Cheyney, *Industrial and Social History of England*, p. 224.

the government should in the main let business alone and should allow business men to carry on their affairs in the way which seemed to them best. The father of economics, Adam Smith, published a book called the "Wealth of Nations" in 1776, which took this position and had a profound influence upon the thought of Englishmen and of other peoples.

The *laissez faire* theory was a comfortable one to follow during a period of such rapid change as was ushered in by the Industrial Revolution. The new "capitalists" were of course glad to have a free hand in dealing with the new conditions, processes, and methods. As for the rest of the community, it was more comfortable to "let alone" than to try to understand and control the new giant forces. Both because it is easier to drift with the tide, and because of the new philosophical outlook the old scheme of governmental control gradually gave way. Some of the regulations were quietly disregarded; others were removed from the statute books. By the end of the first quarter of the nineteenth century the *laissez faire* régime was in full swing.

While the complete story cannot be told at this time, it must be pointed out that *laissez faire* was followed by a new régime of regulation. Evils attended *laissez faire*. For example, the introduction of the factory system, under what were practically *laissez faire* conditions, meant not a little suffering and exploitation of workers. Hours were frightfully long; very young children were used under quite as shocking conditions as obtained among slaves; workers were not protected from dangerous machinery. There are some accounts of children working at the age of five or six, and being beaten, too, for work poorly done or for lack of speed. Indeed orphans were sometimes hired out in lots to unscrupulous taskmasters, who caused them to work and to live under conditions which seem incredible to us to-day. For these and for other reasons there arose, as the Industrial Revolution proceeded on its course, a demand for a return to governmental regulation. This demand can be best understood after we have had an opportunity to take a more intimate view of some of the problems which had to be met.

Stages of development of English industry. The following diagram will help us to see the stages in the development of our economic organization from medieval times to the present. We must keep in mind at least two points in studying this diagram. First, no accurate date can be given when one stage succeeded another. The date differs from nation to nation and from industry to industry because of varying conditions. Second, one stage did not cease suddenly as another began. All the earlier stages have tended to persist. An example of this is the presence of the handicraft tailor in clothes-making to-day. The diagram is, accordingly, more useful as a means of summoning up in the mind the material of the preceding chapters than as a precise, exact statement of stages of development.

POINT OF VIEW TAKEN	THE STAGES OF DEVELOPMENT			
System of production	Household economy	Handicraft economy	Domestic system	Factory system
Extent of market .	Little or none	Local	Wide	Very wide
Method of exchange	Barter	Money	Credit	
Relation of central government to industry	Little	Mercantilism	<i>Laissez faire</i>	Regulation
Organization in the woolen industry	Household	Gild	Clothier	Factory

PROBLEMS

1. What is meant by saying the age of geographical discovery paved the way for the age of invention?
2. How many of the articles in your home are made in factories? Do you know whether your clothes are made in factories? Your shoes? Are the things you eat?
3. It is often said that machine industry, requiring large expenditures of money for building and equipping factories, could not exist

until financial institutions for assembling large sums of money had come into use. Can you explain why this statement might be true? What financial institutions would aid in assembling the money necessary to build a factory?

4. It is often said that machine industry could not come until there existed a laboring class that was not attached to land. Whence came the land-free class?

5. Try to write in a sentence the meaning of the term "The Industrial Revolution." What it meant by saying that the Industrial Revolution began in the thirteenth and fourteenth centuries?

6. Which of the following statements seems to you more true? "The Industrial Revolution was the work of a mere handful of men." "Had Watt and Arkwright lived under the conditions which were in vogue in preceding centuries, they would have secured little distinction."

7. "The clothier under the domestic system had the gain spirit." Is this statement true or do you think the gain spirit began with the Industrial Revolution?

8. What is meant by saying the second inclosure movement was the beginning of capitalistic agriculture? That it was the beginning of scientific farming?

9. The second inclosure movement forced many country workers from the land. Where could they go? Could they become craftsmen?

10. In what ways did the revolution in agriculture contribute to the revolution in manufacture?

11. Could we have had a factory system to-day without the steam engine or some equivalent device? Write out a short statement on "What the steam engine has meant to industry."

12. Machine industry could not reach its greatest importance until machines were used to make machines. Why is this important? Why did they not use machines to make machines at the beginning of the Industrial Revolution?

13. Why is tool industry not as productive as machine industry?

14. It is often said that machine industry could not come until there was a wide market for goods. What were some of the occurrences that widened the market?

15. It has been said that the new machinery would have been of little importance if means of transportation had not been greatly improved. Do you think there is truth in this statement? Describe the ways in which transportation was improved.

16. "Machine industry has meant as much for trade as for manufacture." Explain.

17. What dates should you set as marking the beginning and the end of the Industrial Revolution? Is it over yet?

18. It costs a great deal to build a factory and put it into operation. Make as long a list of these costs as you can.

19. What is meant by saying that machine industry separated the worker from knowledge and control of the business? Give some instances of how this separation might occur. Why was it more difficult for a man who was out of work to go into business for himself after the incoming of machine industry than it had been before?

20. A significant fact of the Industrial Revolution has been the taking from the home to the factory of many things formerly produced in the home. What has this meant for women?

21. "The coming in of machinery made a great demand for the labor of women and children." Why?

22. The Industrial Revolution has increased impersonality. What does this mean?

23. What is the connection between the existence of factories and the growth of cities?

24. Explain why the domestic manufacturers could not meet the competition of the factory system. What became of them? Did they go into agriculture?

25. "The Industrial Revolution brought about a loss of stability in the position of the worker." What does this mean?

26. The system of control which the government exercised over industry before the incoming of *laissez faire* is usually called mercantilism. Look up this word in an encyclopedia. Be ready to explain the difference between this and *laissez faire*.

27. Adam Smith's "Wealth of Nations" and the Declaration of Independence were both declarations of a new attitude of freedom. One was economic, one was political. Explain what this means.

28. Which occurrence of the year 1776 would you say was of more importance, the Declaration of Independence or the publication of the "Wealth of Nations"?

29. Was the Industrial Revolution purely industrial in character? Is one justified in calling it a revolution, or would evolution be a better term?

30. What is meant by saying that we are now in the second phase of the Industrial Revolution?

31. Did the Industrial Revolution help cause the rise of trade unions? What modern problems can you trace back to it?

32. What should you list as the causes of the Industrial Revolution? What should you list as its achievements?

33. Make an outline of the main points of this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 144-153, Selections 82-84.

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Series A, Lesson A-8: Lyon, "The Rise of the Machine Industry."

Series B, Lesson B-2: Tryon, "The Varied Occupations of a Colonial Farm."

Lesson B-3: Van Hoesen, "A Cotton Factory and the Workers."

Series C, Lesson C-2: Tryon, "Spinning and Dyeing Linen in Colonial Times."

Lesson C-29: Lathrop, "Child Labor."

STUDY IX

THE SPECIALIZATION OF BUSINESS UNITS

PURPOSES OF THIS STUDY :

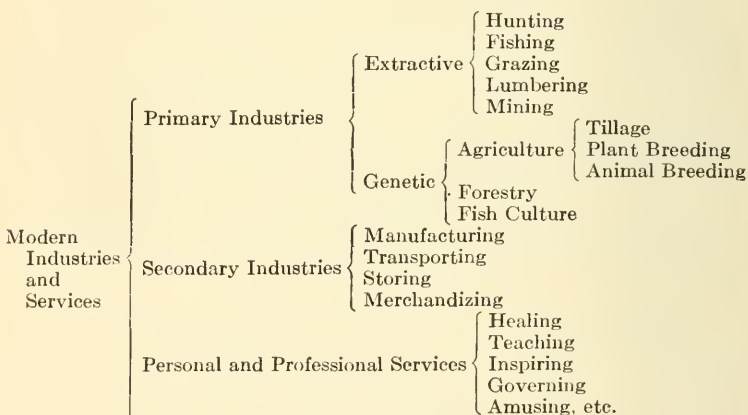
1. To see that production is carried on by specialization.
2. To study the specialization of distinct economic units.
3. To see how this specialization is organized.

Specialization is fundamental in economic organization. — Repeatedly, in our study of the development of our economic organization, we said that it was a story of the incoming of specialists who coöperated. We have seen how one after another of these new-comers — new specialists — contributed something that helped in the great task of gratifying wants. In our modern system of want-gratification, specialization is one of the most important methods that society has developed. Clay, the English economist, points out the true meaning of specialization.

“Specialization,” he says, “is fundamental in economic organization because it is the means by which man increases the return to a given amount of work.” This is the nub of the whole matter. Man in his active adaptation struggle is always eager for devices which will increase productivity, and probably none has been more fruitful than specialization. The full analysis of its advantages (and disadvantages) is postponed to Study XII, for by that time we shall have a knowledge of its many forms and manifestations, and shall be in a position to evaluate its contribution to our welfare. But we know already the prime reasons why it increases productivity. They are well stated by Clay: “It brings about this result in two ways; by subdivision of tasks and by repetition of tasks. Subdivision

results in operations easier in themselves, repetition enables operations to be performed with greater ease."

The differentiation or specialization of productive enterprises. — Historically speaking, one of the earliest forms or manifestations of specialization was the specialization in *occupations*. Even in the medieval manor where nearly every one engaged at one time or another in practically all of the manorial tasks, there was some specialization of this kind. There was pretty certain to be a priest and a miller, and quite likely a blacksmith or a carpenter. With the rise of the towns there developed cloth-makers, barbers, millers, inn-keepers, merchants, shipwrights, pin-makers, tanners, and coopers — to mention only a few of them.



As time went on, occupations became more and more numerous, more and more specialized. With the coming in of the factory system some of these occupations rose to the position of great industries. For example, the medieval shoemaker has been supplanted by the modern shoe-manufacturing industry, the medieval cooper by the great cooperage plants. To-day we see our social resources, land, labor, capital, and acquired knowledge, divided up or apportioned among great industries, which are so numerous that a mere list of them would cover

pages. It would be tiresome to enumerate them. Instead, let us look at the diagrammatic classification¹ of the specialized productive enterprises of a modern community on the preceding page. It could be subdivided much further, but as it stands it is very useful in giving us a bird's-eye view of the specialized enterprises of to-day.

Specialization of economic units aids production. — As every one knows, there are special business units that carry on each of the industries and services shown in this chart. There are farms and ranches, each specialized units in agriculture and grazing. There are mines, saw-mills, offices, theaters, churches, and schools, each of which are separate units specializing in various activities.

To learn more fully of this specialization of economic units and especially to see the importance of such specialization as a "means by which man increases the return to a given amount of work" are our purposes in this study.

What is the breakfast egg? — A useful way of seeing the advantage of specialization of economic units is to follow through the work that must be done in bringing us some such product of daily consumption as eggs. We shall see that the egg on our breakfast table is the result of the specialized services of a great many economic units. The farmer whose poultry yard has furnished him with eggs could sell these in a number of ways. He might send them directly to consumers in the cities, but ordinarily he does not know just who wants eggs at any particular time nor does he know how many could be used by any household and what price it would be willing to pay. Before he could sell eggs in this direct "producer to consumer" fashion, it would also be necessary for him to grade the eggs very carefully so that there could be no dissatisfaction on the part of the purchasers, to pack them for shipment, and to arrange for the collection of money due him. Instead of selling his eggs this way, a more common method is to take them to a neighboring country town and dispose of them to the store-

¹ Carver, *Principles of Political Economy*, p. 192.

keeper. A village storekeeper thus acts as a first centralizing depot where the eggs from the entire neighborhood are collected. In some cases the storekeeper runs the eggs over his "candling machine" and discards those that are spoiled. If he does this, he is performing a second task, that of grading, which must be done before people in the cities care to purchase eggs.

The storekeeper in the country town is in hardly a better position to sell eggs directly to the consumers in the cities than was the farmer. No more than the farmer does he know how many eggs are desired by any particular family nor just what families wish such goods. In other words, he has no "market connections" with consumers in the city. He might, of course, make such market connections, but experience has shown him that it is simpler to pass the eggs on, a large quantity at a time, to some one in the city, and let him perform this function of finding consumers.

In the height of the egg-laying season, the storekeeper of a fairly large town may collect a half carload or even a carload of eggs in the period of a week. He now ships these to a buyer of eggs in quantity in the city. Such a quantity buyer is sometimes called a "wholesale receiver" or "large dealer" or "centralizer." The wholesaler usually grades the eggs carefully into "selects," "seconds," "spots," and other classes according to their quality. This wholesaler, like those who have handled the eggs ahead of him, might possibly sell them directly to consumers. But he is hardly in a position to know the wishes of all the people in every locality of a city (and he is very busy with these other tasks). As we might expect, therefore, still other specialized middlemen come in to take care of this function. The centralizer or large dealer could sell to the grocery stores, the hotels and restaurants, and the bakers which are the principal channels through which eggs pass to consumers. But even of these there are so many in a city of any size that it is difficult for him to keep in touch with all of them and know the market needs and desires of each. In some cases he does sell directly to these buyers. In other cases, he relies on men called

“jobbers” to keep in constant touch with the needs of all the bakers, grocers, hotels, restaurants, and other retail outlets and to sell them the number and quality of eggs demanded.

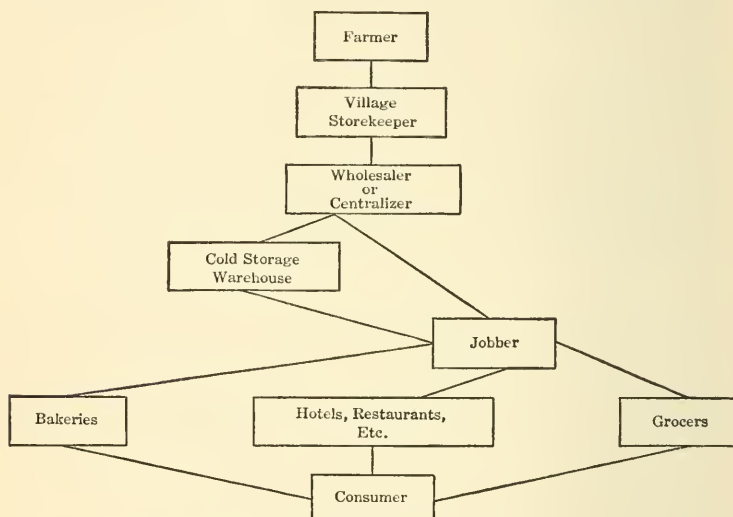
The jobbers who find a market for the eggs received by the wholesaler are not the only persons to whom the stock might be disposed of. Eggs are laid in largest numbers during the months of March, April, May, and June. The supply which pours into the cities during the “laying months” must, if we are to be provided during the winter, be so conserved as to last throughout the year. Therefore, certain individuals who believe it will be profitable to store and preserve eggs purchase them from the wholesale receiver and place them in cold storage warehouses. Here they are kept until winter, when, during the scarce season, they are sold, usually through the jobbers, to the bakers, grocers, hotels, and restaurants.

The diagram which follows shows the specialists who commonly coöperate in producing for a city dweller the eggs he uses. We must not imagine that there are never any variations in this line of specialists. Sometimes, eggs are shipped directly from farms to city residences; sometimes other middlemen than those we have mentioned take part in the work of marketing eggs. For purposes of comparison a similar diagram is presented showing the specialists who usually coöperate in producing wheat flour.

Specialized business units coöperate in most production. — Even though we saw the “why” of various specialized business units in our earlier studies, it may still appear strange that so many different businesses take part in producing almost any single article we consume. Perhaps still another illustration or two may be helpful.

When a shoe or any other article has been completed in the factory where it is made, it is of no more use to us than if it had not been manufactured, if we are at a distance from the factory. Before we can wear shoes they must be brought to a place where we live and must be on hand at the time and at the spot where we can secure them to supply our needs. When a manu-

facturer has made shoes it would be possible for him to convey them to the users, as the old medieval merchant often conveyed his goods. Usually, however, the manufacturer of goods does not attempt to bring his wares to the consumer. For this part of the process of production he depends upon a number of specialists. The manufacturer of shoes, for instance, sometimes

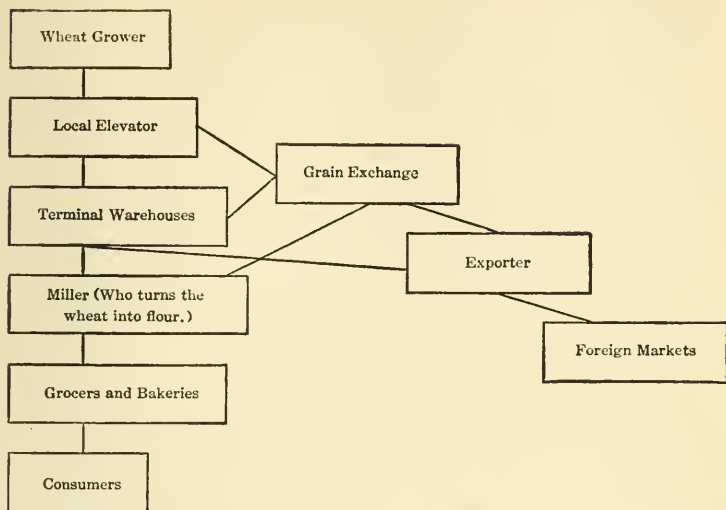


COÖPERATING SPECIALIZED BUSINESS UNITS IN EGG PRODUCTION

Who is the producer of the eggs enjoyed by the consumer? Is it fair that the consumer should pay for all of these specialized services?

sells the output of his factory to a number of wholesale shoe dealers. These wholesalers in turn supply the requirements of a large number of retail stores and the retail stores resell the goods to users.

A manufacturer of light hardware, — knives, locks, keys, and razors, for instance — seldom makes an effort to sell his goods to the people who will use them. More often he sells the entire output of his factory to wholesale hardware dealers, who in turn supply retailers, who supply consumers. This is only saying that these business men complete the production of the articles.

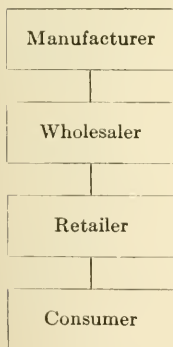


COÖPERATING SPECIALIZED BUSINESS UNITS IN WHEAT FLOUR PRODUCTION

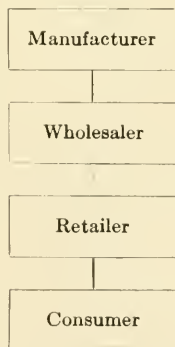
It is such coöperative production that raises difficult problems of organization and reward.

The coöperation of these specialized business units and of others can also be made more clear by charts.¹

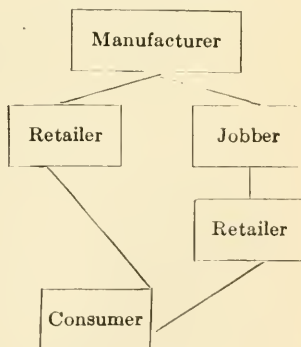
LIGHT HARDWARE



GROCERIES



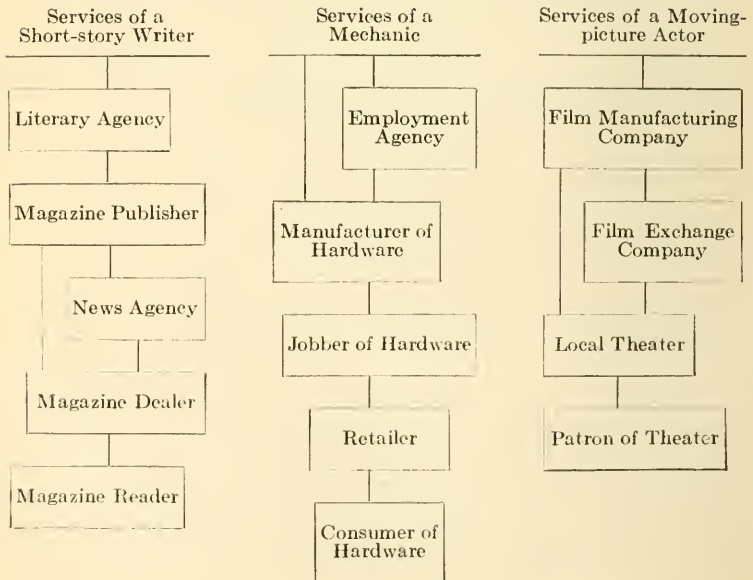
HEAVY HARDWARE



¹ From Paul H. Nystrom, *The Economics of Retailing*, pp. 37-40.

Business units coöperate in producing services. — When one of us buys an article, say a knife, we are buying not only the metal of which the knife is made but the work of all the persons who aided in producing the knife. We must expect to pay, for instance, for the services which mechanics contribute to our use and the work of the salesman who helped us select it at the store. So it is if we attend an opera or a moving picture theater — we expect to pay for the services of singers and actors.

Now it is conceivable that the mechanics might come directly to our house and do the work that was necessary to give us a knife, just as the shoemaker was known to do in the past and as the dressmaker still does sometimes. So, too, the singer or actor might come to our homes and entertain us. Usually, however, these persons do not try to produce their services in this complete way. They bring them part way — sell them to certain business units — first putting them in a form where these business units can convey them to us or pass them on to



still other businesses which can do so even better. The diagrams on the previous page show some of the specialized business units that coöperate in producing for consumers' use certain services.

It is hardly necessary to point out that this production of services by specialized business units multiplies very greatly the number of persons whom the individual can serve, nor is it necessary to say that want-gratification is thereby increased.

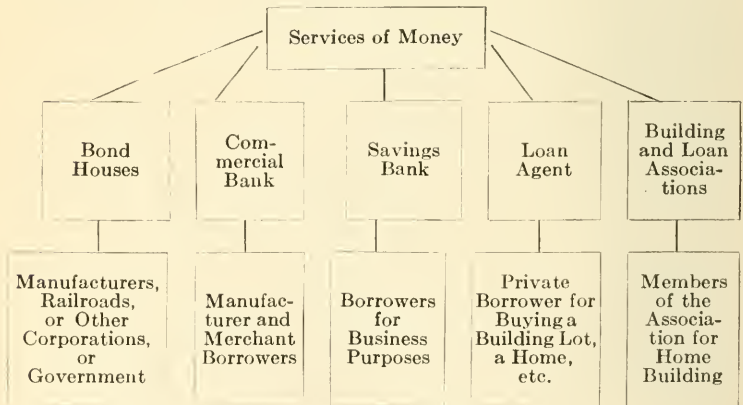
Specialization in producing money services. — Still another example of the way in which specialized businesses aid us in securing what we want may be seen by noticing the way in which the services of money are produced for those who wish to secure such services — that is to borrow.

Suppose that you have \$1000. Another man in your town may be very anxious to secure the services of \$1000 to use in building a house. He does not know that you have money which you wish to loan and you do not know that he desires to borrow. You might be able to loan your money by canvassing the various people of your town and finding out who wished to borrow. This would be a slow and difficult task. Furthermore it would be risky for you to loan your money in this fashion because you would not ordinarily be sure which people could be trusted to fulfill their promises to repay you. In almost every town or city there are business men who aid in making loans. Such a business man is often called a loan agent. To him come people who wish to borrow, and to him go people who wish to lend. His office becomes, therefore, a market place in which the services of money are bought and sold. Since his work is "between" lender and borrower, it is quite serviceable to speak of him as a financial middleman. He will give the time and place utility to the money which the borrower wants. His office is therefore a business unit aiding in producing money services. Loan agents' offices are not the only business units that aid in marketing the services of money. Savings banks do much the same work. The individual who has surplus money leaves it with the savings bank for a return of two or

three or four per cent interest. The savings bank resells the services of this money for a higher rate of interest to men who wish to borrow. The ordinary commercial banks which are common in all of our cities perform a somewhat similar service. Money, which we deposit there and which the bank promises to repay us in equal amount, furnishes a basis for loans to merchants under conditions which we shall study in more detail later.

Sometimes business companies or corporations or the government wish to borrow money for a long period of time. When they do so the written promise to pay which they give is usually called a bond. Certain men make it their business to bring together people who have money to loan for long periods and borrowers who desire such services. To carry on their transactions these men establish offices or business houses which are commonly called bond houses.

The following diagram shows some of the business units which may aid in producing the services of money for those who want it.



It will be worth while in looking at this diagram to ask yourself this question. If it is your money, the services of which finally reach the borrower, who produces it for the borrower?

Do you, or does one of these specialized business units, or do both?

These examples and discussion probably make clear what is meant by speaking of specialization of business or economic units as a "means" of production. But these illustrations show only a part of the truth. Working with or between all these specialized businesses are many others which aid. Some of those most easy to see are newspapers and other media which make possible the rapid transfer of information — a service in which the government also assists through its post-office and its various market services. Railroad, telegraph, and telephone companies are indispensable to such organizations as those which we have been examining. Insurance companies and other agencies also play their part by assisting in risk bearing.

Organized exchanges. — One type of specialized business unit is of such importance and so often misunderstood that it is worth special attention. This unit is the organized exchange. Organized exchanges may be thought of as business units (they are usually in control of a group of men known as members) which furnish a convenient place for buying and selling certain kinds of goods on a large scale and under certain rules.¹ So far as buying and selling are concerned they are merely a market place. The commodities sold are not owned by "the exchange" and are not brought in in bulk. All selling, as we shall see, is practically always done by sample or by description. Bourses, boards of trade, chambers of commerce, and merchants' exchanges are some of the names given these exchanges. The grain exchanges will serve well to illustrate this type of specialized economic unit.

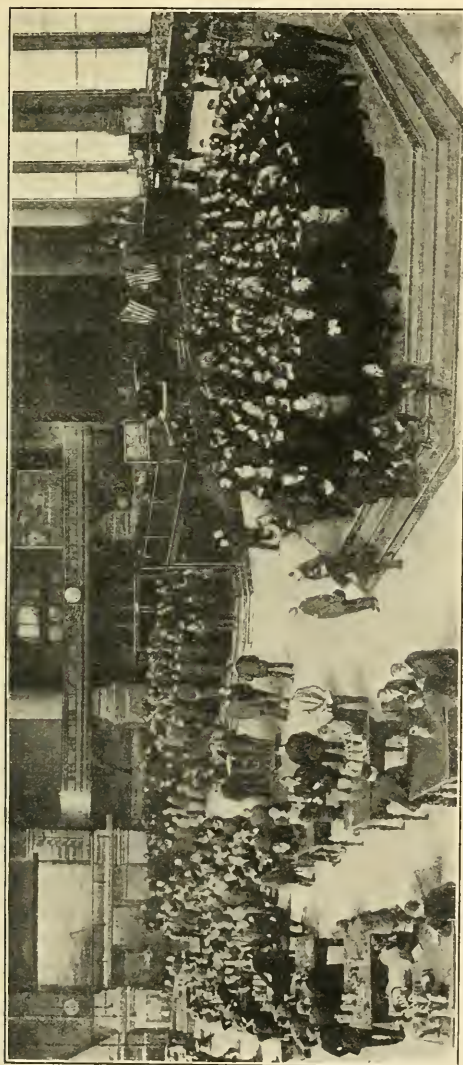
In many of the large cities such as Chicago, Minneapolis, Kansas City, and St. Louis there have been established such market places in which wheat and other grains may be bought and sold and in which buyers and sellers congregate or are repre-

¹ The work of exchanges in making possible risk-bearing contracts will be discussed later.

sented by others. The Chicago exchange, the most important in the grain trade, is called the Board of Trade. Any one who has grain to sell may offer it for sale in these market places. Any one who wishes to buy grain may buy it there. If he is not a member of the exchange, he must secure the services of some one who is a member, in order to carry on these transactions, which are, of course, always on a large scale. It is in these grain exchanges (which are usually simply a large room appropriately arranged and equipped) that the local elevators in the country towns offer their wheat for sale to buyers, and it is in this same market that the men who wish to sell grain abroad place their purchase orders. Indeed, buyers and sellers from all over the world buy and sell grain in these market places through their agents, the brokers. "The exchange itself is not organized for the making of money, and does not fix prices or make transactions in the trade as an organized body. It is merely instrumental in affording a convenient market place, in regulating trade, and in disciplining the conduct of its members. Its members act on their own responsibility."¹ No one needs to use these exchanges unless he wishes, but in point of fact most of the large transactions in grain and certain other commodities occur on the exchanges.

Information from all over the world concerning the demand and supply of grain is continually being collected and sent by wire or letter to the grain exchanges. Reports come in continually on the conditions of crops in this and other countries; on existing supplies of grain; on weather conditions which would affect growing crops; on wars and rumors of wars; in brief, on all possible matters which might affect the demand or supply of foodstuffs. The buyers and sellers become very expert in judging whether certain conditions will result in an increase or a decrease of the grain supply, or in an increase or a decrease of the demand for grain. The price which they are willing to pay or to take for grain, depends, of course, upon

¹ S. S. Heubner, *The Functions of Produce Exchanges*, Annals of the American Academy of Political and Social Science, XXXVIII, pp. 319-339.



Courtesy of Chicago Board of Trade

A GENERAL VIEW OF THE CHICAGO BOARD OF TRADE

At the left the grain tables where cash sales are made; at the right the pits where trading in futures takes place. The wheat pit is in the foreground. Trading in futures means buying and selling for delivery at some time in the future.

those conditions. It is easy to see how a man accustomed to examining all the information which flows in to an exchange can tell much more accurately the price at which grain should sell than can, for instance, a western farmer or country elevator man who has little access to such information and little skill in evaluating it. Perhaps most important is the convenience with which sellers pass their share in production on to the other specialized business units that are to continue the work.

The price at which grain sells as a result of the bargaining in these central markets is immediately telegraphed all over the world and grain even in the most remote country districts is bought and sold on the basis of the prices which are determined here. Thus, a farmer in western Minnesota is able at any time to know exactly what his grain is worth "on the market." He will receive a price only a few cents less than that which is offered on the Minneapolis or Chicago Grain Exchange. Some difference in price is necessary, of course, to cover costs of transportation, insurance, and the profits of those handling it. The grain exchanges in different cities keep closely in touch with one another by telegraph, and a practice called "arbitraging" results in keeping prices in all of them in close relationship. For example, if the price on the Chicago Board of Trade should "get out of line" by being higher than the Minneapolis price plus transportation charges, Minneapolis buyers would probably purchase in large quantities in Minneapolis and sell in Chicago through their brokers on the Chicago exchange. This would cause the price of wheat to rise in Minneapolis, and to fall in Chicago until the prices in the two cities were no wider apart than the cost of shipping wheat between them. This arbitraging is sometimes carried on even between markets in different countries, as between Chicago and Liverpool, and in this way the price of wheat and other grains is kept in balance all over the world.

The other exchanges are quite similar to the grain exchange in organization, methods of work, and in services rendered.

The following list of persons represented on a cotton exchange serves to show the extent of its influence and how truly it acts as one specialized agency among the various specialists in our society who are productive in raising cotton and in cotton manufacturing.¹

1. Commission merchants who sell cotton for planters.
2. Exporters who buy cotton for spinners and merchants in Europe.
3. Merchants who buy cotton for spinners in the United States.
4. Bankers through whom all bills of exchange drawn against cotton are negotiated.
5. Ship agents who represent the great fleet of steamers and sailing vessels by which the cotton is carried abroad and to domestic ports.
6. Insurance agents who arrange the insurance on the bulk of the cotton seeking a market through this port.
7. Cotton brokers.
8. Expert judges of the raw material, who buy cotton from representatives of the planters for the merchants who ship to Europe and to American spinners.
9. Future brokers, who buy and sell contracts for forward delivery for account of members of the exchange, or for merchants and spinners in Europe and the United States.

Certain evils have grown up around these organized exchanges and some persons believe that they do more harm than good and ought to be abolished. It is quite generally agreed, however, that such a position is an extreme one. The exchanges render us good service. It ought to be possible to retain this good service and to eliminate the evils which have crept in.

Conditions prerequisite to the establishment of organized markets. — Since the organized exchanges are so useful the question naturally arises, why are they not used for all goods? It will be clear upon reflection, however, that organized markets can wisely be set up only under conditions which apply as yet to relatively few commodities.

In the first place the demand for the good must be so large and so general that it will be worth while to set up such a large

¹ Report of the Industrial Commission, XI, 27.

and complex set of connections as exists, for example, in the cotton exchange. Most goods do not have such a large volume of demand.

In the second place, the goods must be of a kind which will enable people to sell it by sample or "by description." If a good is to be sold by description it must be possible to standardize



Courtesy of Chicago Board of Trade

SCENE IN GRAIN TESTING AND GRADING DEPARTMENT OF THE CHICAGO BOARD OF TRADE

The samples of grain taken from freight cars are carefully tested and graded by experts appointed by the state of Illinois.

it and grade it so that people will know exactly what they are buying or selling when they deal in one of its grades.

Let us see how sales by sample and description work out in the case of wheat. Suppose that a local elevator owner in North Dakota has purchased a large quantity of wheat from farmers and that he wishes to sell this wheat immediately. Among the persons who would be willing to buy this wheat are millers, exporters, and large terminal warehouse men. They cannot go to his distant elevator and inspect this wheat; neither can he exhibit it to them. How then is a sale to be consummated? The difficulty of such a case is avoided by a careful system of

grading and inspection which has been worked out. The work has been most carefully done. Number 1, Northern Spring Wheat, for instance, means a certain definite quality of wheat, while number 2, Northern, and number 3, Northern, other equally definite types. Various other grades are established so that although a buyer may purchase only by such a description as one of these names he knows quite definitely what quality of grain he is purchasing. The elevator owner may ship the wheat in carloads. Buyers in terminal markets do not need to go and see the grain. Samples are taken from which the grain may be sold by sample or grade.

The way the state of Minnesota inspects the wheat shipped to Minneapolis furnishes a good example of how grain is examined to determine its grade.¹ When the cars reach the railroad yards, or in some cases when they are still many miles from Minneapolis, they are entered by carefully selected inspectors called samplers. The method used by the samplers is as follows: each has a long tubular brass instrument somewhat like a piece of iron pipe which is divided into separate chambers. This is called a probe. It is inserted in the wheat from the top to the bottom of the car. The small doors opening into the separate chambers of the probe are opened, the chambers filled with grain, and the doors are then closed. The probe now contains samples of the grain taken at different depths. The sampler takes a number of samples from various parts of the car to make sure that the grain is uniform throughout, or if not uniform, to enable him to judge the extent to which screenings or dirt, or inferior grades have been introduced into any part of the load. From the samples which have been thus obtained, the state inspection department of Minnesota determines the grade of the grain in the car, which may now be sold by description. It is possible to sell the grain as of a given grade even before the inspection has been made and then allow a discount or dockage if the grain proves to be of lower grade. Inspection in the larger grain states is

¹ Cf. L. D. H. Weld, *The Marketing of Farm Products*, pp. 370-376.

generally made by the state government, but in the eastern states it is usually done by the exchanges themselves. In some states both the exchanges and the state government inspect.

In the case of cotton the grades have been established after very painstaking study by our federal government. Its agents also do the inspecting and the assigning of grades. The grades thus established are the basis for most of the cotton sales made in this country.

The coöperation of specialized business units. — One of the interesting things about these specialized business units which aid so greatly in producing want-gratifying goods is the way they are knitted together. It is indeed interesting and surprising that they should be bound together and work together as well as they do. There is no general "boss" or authority which tells each one what work it shall do. There is no general authority or manager who decides that eggs for the user shall be produced in part by the farmer, in part by the wholesale establishment, in part by the retail store. The organization or coöperation of all these individual units is left to the directors or managers of each unit. Each of these managers is working in his own interest and with the desire to make as much profit as possible. In this way a business unit is likely to be eliminated if it performs some task less efficiently than another business can do it. Sometimes it is said that this coöperation is a coöperation by exchange, but this term if so used is only another way of saying that the coöperation of all these specialists is effected through the efforts of each to seek his own financial welfare.

Eliminating the middleman does not eliminate his functions. — As time has gone on, certain usages of terms have become customary. We have come to call "functional middlemen" those specialized institutions (such as railroads, insurance companies, and banks) which are not thought of as standing *directly between* the "producer" and the "consumer," but which serve all other specialized business units. We have come to call simply "middlemen" those specialized institutions (such

as wholesaler or jobber, broker, and retailer) which do stand directly between the "producer" and the "consumer."

The "middleman" has come in for a deal of blame in recent years — for much more blame than he really deserves. A great many people do not realize clearly that production is not completed when the goods we want have been "made" by the farmer or the manufacturer. There is still much "producing" which must take place. Goods must be "assembled" from wide areas and "transported" to the place where they are to be consumed; frequently they must be "stored" for a time; they must be "rearranged," that is, must be divided into pounds, yards, or dozens to suit the convenience of the consumer; these various matters must be "financed" and in all of them there is "assumption of risks" such as those of spoiling or other forms of deterioration.

Somebody must perform these various functions; there is no way of escaping this necessity. It may well be that in some cases these matters can be more efficiently and more cheaply handled by the manufacturer or the consumer than by the middleman. Certainly, in some cases the manufacturer and the consumer are taking over these functions. We must not deceive ourselves, however, concerning what this means. The middleman has been eliminated, but the functions he performed have not been wiped out; they have merely been taken over by others. It costs these others something to perform them; the question at issue is whether it costs as much as it costs to have them performed by the middleman. Perhaps it is a bit unfortunate that we use the term "middlemen." Certainly we ought to think of them not merely as people "standing between" the producer and the consumer, but as *producers* who are continuing a process which has been begun by others.

PROBLEMS

1. Make a list of the most important articles of wealth you enjoy which are supplied in whole or in part by other people. Make another list of those things supplied by your own unaided activities. Do these

lists justify the use of the term "coöperative" as descriptive of the existing economic order?

2. Formerly people gratified their wants directly, — they produced what they consumed. Nowadays specialists pour products — wealth and services — into a vast social reservoir and then draw from this reservoir the things they consume. Does this seem to you substantially true? Name some of the specialists.

3. "The business man thinks he is engaged in getting a living. He is. He is also engaged in a vast coöperative enterprise as large as all industrial society." Is this true? If it is, has it always been true? Are all ways of getting a living forms of what we call "business"?

4. Our society is a coöperative society. Was manorial economy coöperative? Would communism be coöperative?

5. Find out either from some local coal dealer or some automobile dealer, or some dry goods dealer, the marketing channel through which his commodity comes to him, and bring to class a chart showing this marketing channel.

6. Make a list of business concerns in your city which have services to sell. A legal firm would be one example of this. Make a list of business organizations which are engaged in marketing the services of other people.

7. You are an expert machinist. There is only one machine shop in your town. Where are you likely to sell your labor? If three new factories came to your town, what would happen to the market for your services?

8. You are an expert machinist. Make a list of all of the ways in which the market for your labor could be widened.

9. List other producers who might aid in producing for a consumer the services of a bricklayer, a school teacher, a trapper, a surgeon.

10. "Specialization and coöperation between business units do not really help. Time and energy are spent in merely passing goods on." Do you agree?

11. Why does not the farmer who raises live stock sell meat directly to persons living in the city? Why do not those of us who live in large cities purchase oranges direct from the growers in California?

12. Are there, besides the retailers, grocery jobbers in your town? If so, find out what they do that is not done by the retailers.

13. A certain grocer often expresses regret that the obligations to support a family compel him to continue in an occupation which makes him a "parasite" — one who lives on others, consuming without producing. Is his position well taken?

14. "The mail order house, such as that of Sears, Roebuck and Co., eliminates the function of the wholesaler and retailer." Is this true, or is it merely the wholesaler and retailer who are eliminated?

15. A man rented a summer cottage of a farmer who ran a poultry yard and sent as many as fifty dozen eggs every week to a firm in Chicago. The tenant asked the farmer to supply him with eggs but was refused on the ground that "it was not worth while," although the tenant was willing to carry the eggs home and to pay the Chicago price. How do you account for this?

16. We hear much of the elimination of the middleman. Can his functions be eliminated? What functions does he perform?

17. "Internal commerce does not increase the wealth of a nation since it only transfers goods from one person to another." Is this true?

18. Explain how the organized markets for selling grain help in bringing it to the consumer.

19. In what ways is the organized exchange of service to farmers? To grain buyers in small towns? To millers? To exporters?

20. What are some of the instruments for bringing information concerning market conditions to the grain exchanges? Are government weather reports useful in this connection? Would it be worth while for the traders on the exchanges to pay a specialized business organization to gather information and transmit it to the exchange?

21. Why is it necessary to have grades established in goods which are to be sold by description rather than by bulk or by sample? How is it possible for mail order houses to sell goods by description? Would you buy from every one by description?

22. What is meant by saying that an organized exchange provides a "world price"?

23. Study over the conditions which must exist before an organized exchange can be developed to deal in a given commodity. How does it happen that we have no organized exchanges on which labor is bought and sold?

24. Banks, bond houses, loan agents, transportation companies, and insurance companies are "functional middlemen." Can you justify the name?

25. What is meant by saying that the services of money can be sold? Is selling money services a market operation? What are some of the business units that specialize in selling money services?

26. In our coöperative production each specialist in a series thinks of the specialist who follows him as a market for his goods. Is this statement true? Can you give illustrations?

27. "Ours is a market society. The factory to the mill hand; the schooner to the sailor; the bond house or brokers' office to the man with money; the lyceum bureau to the singer; the hog buyer to the Iowa farmer; the padrone to the laborer; the munitions plant to the copper mining corporation; the railroad to the steel company; the jobber to the canner; the family to the local merchant — all may represent much the same thing." What thing?

28. Our society is often spoken of as a market society or a society of market structures. Show why these terms are appropriate. Would they have been equally appropriate to English society in the manorial period?

29. Would our coöperation of specialists be possible if we did not have the law of contracts? If we did not have mechanisms to give information? If we did not give people rights of property in goods?

30. Do specialized business units coöperate? Does it seem to you that their coöperation is planned? If so, by whom? If not, how do they manage to get along without great confusion?

31. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 227-236; Selections 85-99.

Bureau of Education, *Lessons in Community and National Life*:
Series A, Lesson A-3: Lyon, "The Coöperation of Specialists
in Modern Society."

STUDY X

SPECIALIZATION WITHIN BUSINESS UNITS

PURPOSES OF THIS STUDY:

1. To see the workings of specialization in large-scale business units.
2. To note the advantages to production of such specialization.

In the preceding lesson we learned that production of want-gratifying goods is greatly aided by the specializing of separate units in different parts of the task, but this is only part of the story of specialization. Within each of these specialized business or economic units which we studied, there has been worked out, especially in those units which are of large size, a very great amount of specialization. It is with this specialization *within* business units that we are most concerned in this chapter. Perhaps we can see most clearly the meaning of specialization within the business unit if we look at it in rather an extreme form. Let us accordingly look at specialization as it exists in one of our large modern factories where it has been carried furthest.

As for those generally called workers in such a plant, it will be found that in most cases their specialization has been carried beyond the trade stage, beyond the process stage, and down into the stage of detailed operations. In a shoe factory, for example, we should find that no one works through the entire process of making a shoe, but that the undertaking is divided into many scores of separate operations each of which is worked at by some worker who does nothing else. We should find in such a factory that a "lining-stitcher" sews together the different pieces of the lining; a "closer-on" stitches the lining into the shoes. A "gang-punch operator" punches the holes for the eyelets. An "eyeleter" puts in the eyelets with another machine. A "hooker" puts in the hooks with still another

machine. In working on the heels, a "heel slugger" drives into the heels a row of brass or steel nails. A "heel-scourer" sandpapers the heel. A "heel-breaster" cuts the front of the heel with a knife driven by a foot lever. A boy called an "edge-blacker" blacks the edges of the heels with a brush. An "edge-setter" hardens this blacking with a block of steel cut to fit the edge and heated by gas. There are separate persons to stamp on the name of the company, to polish the shoes before they are inspected, to inspect them, to put in the laces, to wrap them, to box them, and so on almost indefinitely. In the entire factory there are more than 100 little specialized tasks, nearly all of which are done by machinery. Each piece of machinery is operated by some one person who does nothing else and has very little opportunity to learn anything about any other part of the work.

In other factories specialization of labor is carried on quite as extensively. In the large plants of the meat-packing industries, for instance, where more than 1000 cattle a day are killed, between 200 and 250 butchers, helpers, and laborers each perform some one specialized task in the process of turning the live animal into dressed meat. The whole animal has been surveyed and "laid out like a map," and each part of the work is in the hands of some one who does nothing but one specialized task. One man stuns the animals, a second gives the fatal knife thrust, another farther along removes waste parts, still another inspects the meat. Nine or ten different men work merely on the hide of the animal. In some of the plants one man does nothing but pull off a tail; a second skins a part of the animal where the work is easy; a higher-priced man removes a part of the hide that comes away with more difficulty; and still a higher-priced man does the work which requires a more delicate use of the knife. So on throughout the whole process.

If we were to make a visit to the large general office of one of these factories, we should find that the work is as highly specialized as in the shops. In a survey¹ that was made in one

¹ Bertha Stevens, *Boys and Girls in Commercial Work*, "Cleveland Survey," p. 24.

large American city and which covered 1955 non-managerial positions held by men and boys it was seen that the office work was specialized as follows :

BOOKKEEPERS, ETC.		
Bookkeepers, assistants	151	
Cashiers	37	
Paymasters, assistants	14	
Accountants, assistants	10	
Statistical workers	5	
Auditors, assistants	4	
Tellers	2	223
STENOGRAPHERS		
Stenographers	174	
Private secretaries	3	177
CLERKS		
Shipping	85	
Cost production	63	
Receiving, stock	59	
Sales order	48	
Time	47	
Record entry	20	
Mail	15	
Bill	12	
Railway	12	
Claim	7	
File, index	7	
Inventory	7	
Invoice	6	
Scale	4	
Pricing	3	
Routing	2	
Voucher	2	
Unspecified	927	1,326
MACHINE WORKERS		
Billers	13	
Multigraph operators	3	
Typists	3	19
GENERAL CLERICAL WORKERS		
Office boys, messengers	166	
Checkers and general office workers	44	210
Total		1,955

Specialization of capital in a large-scale plant. — Division of labor is by no means the only kind of specialization that is used in a large plant in producing goods and services. Such a factory as we have been considering will give us plenty of instances of the specialization of capital. In the meat-packing industry, for example, specialized knives have been devised to make the work of the laborers more accurate and more rapid. In a shoe factory there is a machine — a piece of specialized capital — for almost every specialized worker. The “die-cutter” uses specialized dies; the “lining-stitcher” has his machine; the “gang-punch” operator has the machine punch; the “heel-slagger” has a slugging machine. Even the boy who blacks the edges of the heels has his brush and the “edge-setter” his block of steel. In other factories, specialized machines have been combined into great automatic monsters which perform a whole series of operations without the touch of a human hand. Adam Smith was much impressed at the division of labor in pin-making in 1776, when there were eighteen different operations performed by as many workers. It would be interesting to hear what he would say of the modern pin-making machine, which receives at one end rods of metal and delivers at the other packets or papers of pins neatly folded and ready for the market.

It is not always easy to say whether the use of specialized machinery is a result or a cause of the division of labor. It is a result in the sense that after tasks have been divided and operations have been repeated by the worker over and over, it becomes easy and natural to devise a machine for doing this routine work. Once the market is large enough to demand continuous repetition of an unvarying operation, the great advantages of the machine will cause it to be introduced sooner or later. It never tires; the powers it can bring to bear upon a given task far exceed those of unaided human hands; the only limit to its speed is the speed of its driving mechanism and the strength of its materials; it is more regular, reliable, consistent, and uniform in its operations than is the human worker; its



Courtesy Sears, Roebuck and Co.

SPECIALIZATION IN OFFICE WORK IN A LARGE MAIL ORDER HOUSE

This picture shows the entry department where 500 young women, operating typewriter billing machines, separate the various items on the customer's order and write the tickets for the different merchandise departments represented, so that the entire order may be filled at one time and the various items reach the assembling room for shipment.

touch is, when necessary, most delicate — witness the machines in watch-making which gauge measurements to one twenty-five-thousandth of an inch and turn out screws so fine that more than one hundred thousand are required to weigh a pound. A survey of such considerations makes it appear that the introduction of the machine is a result of the division of labor and of the merits of the machine.

The invention and introduction of a machine are, however, a cause of division or specialization of labor in the sense that the new machine does the former specialized task of the worker and creates a new job — that of the specialized machine tender. This is both a further division of labor and a reduction in the requirements for skill. The new job commonly requires much less skill than did the old one. Ordinarily, it may be taught in a few hours or in a few days at the most. Here we have one cause of the increasing utilization of women in modern industry, of the pressure for the use of children by some employers, and of the scarcity of “all-around mechanics” when some special demand for large numbers of them arises.

One must not overlook the fact, however, that the increasing use of machinery increases the demand for certain kinds of skill. It calls for men who are skilled in setting up, regulating, and repairing machines; it calls for ranges or series of skilled processes in engineering and machine-making, even though machine-making, when done on a large scale, is commonly separated into detailed operations.

Specialization of management in a large-scale plant. — The management, too, of one of our large-scale business units is highly specialized. Speaking in broad, general terms, such management concerns itself with two sets of problems. Upon the one hand it must knit together into one coherent productive process the hundreds and even thousands of specialized operations which go on within the business. Reflect upon the hundreds of parts of an automobile. Picture the raw materials for these parts flowing into the factory in the right quantities, at the right times, and at the right places, for them to be made

into automobile parts. Picture these parts being made and flowing together to form the finished product, the timing of their flow correct to the second, and meeting, not only one another, but scores of other parts which have been bought outside this particular plant in finished form. Then reflect that these "factory processes" must dovetail in with the selling operations of the plant, and with the operations having to do with the control of its funds. It is clear enough that the management will have to be very efficient to take care of such difficult problems.

But this plant also has relations with the rest of the world. It buys raw materials and finished parts; it deals with bankers, insurance agents, taxation bureaus, city aldermen, state factory inspectors, and scores of other functionaries; it sells its product either direct to the consumer or to middlemen. The management of the plant must take care of these problems, also, and only an efficient management can care for them adequately.

To say that the management should be efficient is almost equivalent to saying that it must be specialized, so numerous and varied are the tasks. And it is highly specialized. The treasurer and under him the auditor are the specialists finally responsible for finances. The purchasing agent, with a group of functionaries under him, looks out for purchasing raw materials and equipment. The toolroom man sees that adequate tools are available in good condition. The director of industrial relations supervises matters connected with labor administration. The sales manager, with perhaps an advertising manager under him, disposes of the finished product in the market. Over these and others, ultimately responsible for the successful solution of both internal and external problems, is the general manager. He is the final correlator of the thousands of specialized operations of the plant, and as we shall see later, one of the agencies for correlating the plant with the rest of society. He is the specialist to whom the other specialists in the organization report—to whom the owners of the business look for results.

and how to make each motion in the quickest, easiest, and best way. A third has the special duty of seeing that each machine is run at the best speed, and with the best tools. Other functional foremen have taken over the various tasks carried on by the "general" foreman of the older system.

The specialists of a modern factory coöperate. — "From the point of view of the individual the division of labor means specialization; from the point of view of society it means coöperation," says Clay. This is easily seen to be true of the specialization of a modern large manufacturing plant. The specialists in such business units as a shoe factory or a packing house are all coöperating. The individuals may know very little excepting their own work. They may know almost none of the other specialists. They may even feel that they are opposed to what other workmen or the managers of the factory wish to accomplish, and yet the work of all is coöperative and interdependent. Each doing his specialized part coöperates with each of the others. The worker in a shoe factory who cuts a hide into pieces of leather for making a shoe coöperates with the men who stitch those pieces together, and the hundreds of others who each do a specialized part of the whole process coöperate with each of the specialized office workers and with the specialized management. In such an individual business unit, specialization does not allow independence. It compels interdependence. It compels coöperation.

Coöperation by authority. — The coöperation within a business unit, however, is not guided entirely by the wishes of the specialists themselves. We noticed in the last chapter that specialized business units were directed in their coöperation by the self-interest of the individual enterprisers who were controlling them. But within each business unit, the specialists do, to a great degree, what they are directed to do by the management. Thus the coöperation within a business unit has often been called coöperation *by authority*. It is so named because the authority of the management directs and coördinates the specialized work of each of those who coöperate.

Summary. — Now that we have seen something of the way specialization is used within business units, and have seen also how each of the business units is itself a specialist, it may be worth while to take a summary view of the whole matter.

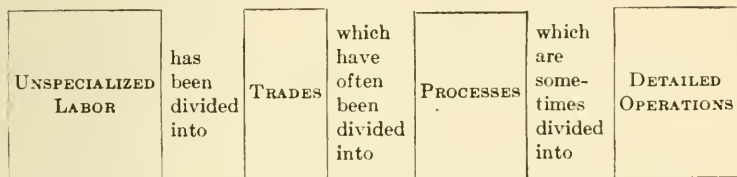
Let us begin again with the *unspecialized inhabitant* of the manor — unspecialized, that is, except for the priest, the miller, the blacksmith, and the carpenter. The next stage is the differentiation into *trades* or *crafts*, some of which have been mentioned above. In some cases the market is not wide enough, and the demand for the product not great enough to justify any further specialization; for example, we have even to-day in rural districts the all-around carpenter; in the country town or the suburb, we have the physician with a general practice, or the lawyer who handles all kinds of cases.

In other cases, however, a large market existed for certain products, and trades became differentiated into *processes*. This is further specialization and makes for faster production. We saw how the expanding market led under the handicraft system to the differentiation of the old cloth-maker into the spinner, the weaver, the dyer, the fuller, the shearer, and others. The smith became differentiated into the goldsmith, the silver-smith, and the blacksmith. Abundant examples of the same process exist in our society to-day. In our larger cities general medical practice has frequently been broken up into the work of the eye-specialist, the ear-specialist, the heart-specialist, and others. The lawyer has become the corporation lawyer, the patent lawyer, and the claims attorney. Such specialization, clearly, is only profitable where there are many persons wanting each kind of service. Such a situation might well be called a wide market for services.

The all-round machinist has differentiated into quite a range of "specialists." The work of machinists might be said to be on the very border of the fourth stage of development when processes become split up into their small constituent *operations*. This stage is not often reached in the realm of professional services, but it is the typical state of affairs in

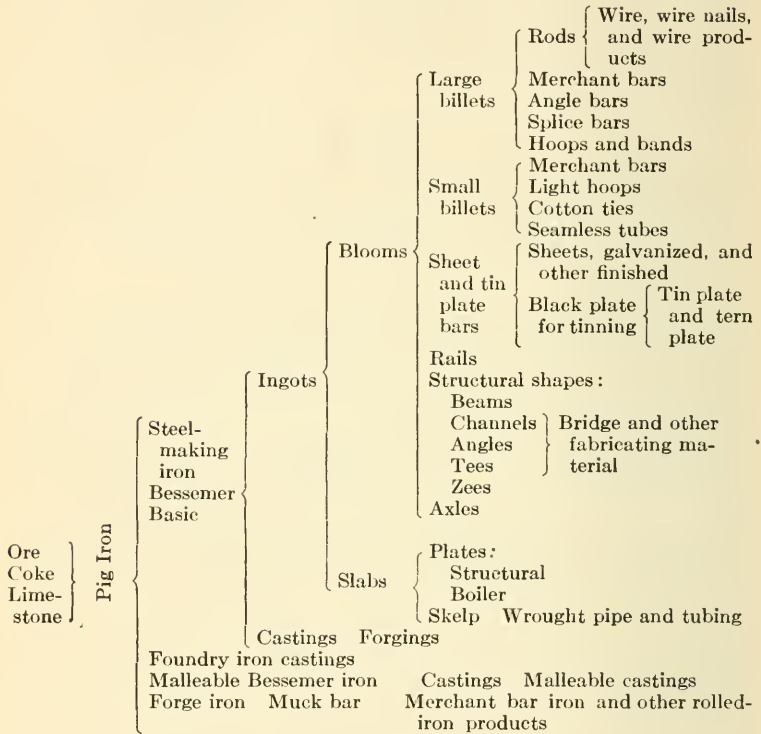
machine industry under the factory system. We have seen illustrations of this in the meat-packing industries, for instance. The whole animal has been surveyed and "laid out like a map."

Put in the form of a diagram this discussion would run as follows :



Successive specialization, ranges or series of activities. —The differentiation into economic units and the differentiation of trades and processes and operations within units have been discussed separately, but they are not separated in our actual want-gratifying activities. Accordingly, we should now try to get an idea of how they are interwoven and intertangled in ordinary business life. As an illustration think back over the preliminary steps involved in the making of such a simple thing as a wooden footstool in a manual training class. Take first of all the wood which is worked up. Let us go no further back than the cutting down of a tree in a forest. This is done by one specialist. Later the tree is sawed into rough boards at a saw mill by another group of specialists. It is then bought by a wholesale lumber dealer; transported by another group of specialists; sold to a retail dealer who has a mill for planing it and working it up into more appropriate shapes; sold by the retail dealer to the school; transported through the streets by a draying concern. The material has thus passed *successively* through the hands of a range or series of specialists, who can be classified from one point of view in terms of the producing industries of society (such as lumbering, transporting, and merchandising), and can be classified from another point of view in terms of trades or processes (such as teamster, brakeman, telegrapher), all of whom were engaged in preparing wood for

use. A similar series, of course, exists for each tool that was used, for nails, glue, or other material.



But this is only the beginning. Every one of the specialists in the original series or succession reaches back into one or more other series. Take, as one example, the saw mill at which a board was sawed. It is the end or culmination of the work of several series of specialists reaching back into the forest, the ore mine, and the cattle industry. It might well happen that the specialist in the ore mine or in the cattle industry, who took part in the series culminating in the saw mill, also took part in the series culminating in a hammer, or the leather used in upholstering the stool. This illustration

is typical. It shows how our specialization runs in great ranges or series which crisscross one another in bewildering complexity. Perhaps the diagram¹ on the opposite page, sketching some of the uses to which pig iron is put, will serve to conclude the discussion of these phases of specialization.

The great coöperation. — Adam Smith, more than a century ago, when there was far less specialization than exists now, perceived the coöperating activities of all the specialists and described the situation in these words.²

“The woolen coat, for example, which covers the day-labourer, as coarse and rough as it may appear, is the product of the joint labour of a great multitude of workmen. The shepherd, the sorter of the wool, the wool-comber or carder, the dyer, the scribbler, the spinner, the weaver, the fuller, the dresser, with many others, must all join their different arts in order to complete even this homely production. How many merchants and carriers, besides, must have been employed in transporting the materials from some of those workmen to others who often live in a very distant part of the country! How much commerce and navigation in particular, how many ship-builders, sailors, sail-makers, rope-makers, must have been employed in order to bring together the different drugs made use of by the dyer, which often come from the remotest corners of the world! What a variety of labour, too, is necessary in order to produce the tools of the meanest of these workmen. To say nothing of such complicated machines as the ship of the sailor, the mill of the fuller, or even the loom of the weaver, let us consider only what a variety of labour is requisite in order to form that very simple machine, the shears with which the shepherd clips the wool. The miner, the builder of the furnace for smelting the ore, the feller of the timber, the burner of the charcoal to be made use of in the smelting house, the brick-maker, the brick-layer, the workmen who attend the furnace, the millwright, the forger, the smith, must all of them join their different arts in order to produce them. Were we to examine, in the same manner, all the different parts of his dress and household furniture, the coarse linen shirt which he wears next his

¹ From Report of the United States Commissioner of Corporations on the Steel Industry, Part III, 1913, p. 13.

² Adapted from Adam Smith, *Wealth of Nations*, Book I, Ch. I, pp. 12-13. (George Bell & Sons, 1899.)

skin, the shoes which cover his feet, the bed which he lies on, and all the different parts which compose it, the kitchen grate at which he prepares his victuals, the coals which he makes use of for that purpose, dug from the bowels of the earth, and brought to him perhaps by a long sea and a long land carriage, all the other utensils or pewter plates upon which he serves up and divides his victuals, the different hands employed in preparing his bread and his beer, the glass window which lets in the heat and the light, and keeps out the wind and the rain, with all the knowledge and art requisite for preparing that beautiful and happy invention, without which these northern parts of the world could scarce have afforded a very comfortable habitation, together with the tools of all the different workmen employed in producing those different conveniences; if we examine, I say, all these things, and consider what a variety of labour is employed about each of them, we shall be sensible that without the assistance and coöperation of many thousands the very meanest person in a civilized country could not be provided, even according to, what we very falsely imagine, the easy and simple manner in which he is commonly accommodated. Compared, indeed, with the more extravagant luxury of the great, his accommodation must no doubt appear extremely simple and easy; and yet it may be true, perhaps, that the accommodation of an European prince does not always so much exceed that of an industrious and frugal peasant as the accommodation of the latter exceeds that of many an African king, the absolute master of the lives and liberties of ten thousand naked savages."

Even this description does not include all of the specialists who take part in the great coöperation. Schools help to educate the men for their work. Inventors devise the machinery used. Physicians keep up the health of workers; actors, musicians, and ministers give them recreation and encouragement. Policemen and soldiers render protection and security. The law guides and regulates all of the specialists and their operations. The men who make these laws and the judges who administer them are, therefore, among the coöperators. Checks and drafts are used in making payments, money is borrowed, and thus the banker plays a part. We cannot leave out the agencies through which the specialists sell their services, nor

those through which the finished goods are called to the attention of those who need them. This brings in all the newspaper and magazine workers, the writers, the circulation men, the typesetters, and press operators. All of these, therefore, are among the coöperators that must be counted in whether we are talking about a coat, a loaf of bread, a shoe, a song, a sermon, a hairpin, or a battleship.

Even into the past and future stretches the web of economic relationships. We utilize the products of those who have worked before us. Their inventions, either of mechanical agencies or of such intangible devices as rules of law, morals, language, accounting or principles of business, are useful to us. Likewise we count upon the future. When we write a book, make a brick, build a house, or dig a well, it is the demand of the future as much as of the present that makes our work valuable. Thus are we interdependent with those who follow us. We are coöperators with generations yet unborn.

PROBLEMS

1. Review Study II and indicate the various ways in which we might have secured a supply of wealth and services if we had been shipwrecked on an island.

2. Explain and illustrate specialization by industries; processes; operations; series; localities.

3. Was there specialization in the manorial economy? Would there be specialization under communism?

4. Can you think of any one to-day who engages in every kind of work necessary to produce the commodities which he uses?

5. Take the classification of industries on page 128 and tell in what class or group each of ten of your acquaintances works. Are they nearly all in one class? If so, how do you account for this concentration? Are they widely scattered? If so, why?

6. Subdivide further the classification of industries on page 128. For example, mention twelve kinds of manufacturing.

7. Just why is a wide or large market a prerequisite of specialization?

8. "The specialists in a modern factory are separate, individual, unrelated units. They know little of the work of one another; they care less. There is no coöperation; there can be no sense of unity under such a system." Pick out the parts of this statement with which you agree and those with which you disagree and be ready to defend your position.

9. Talk with some one who has been working in a bank or an office or a factory for a year or two, to see whether he thinks he is progressing in general knowledge of the business. What is to be said for and against the statement that one learns a business by working at it?

10. Why should the factories in which shoes are made exhibit a higher degree of specialization than that shown in many other factories?

11. Make a list of specialized tasks. What persons perform other specialized tasks that are necessary either to begin or to complete the process partly carried on in the tasks in your list?

12. Have you ever known of a strike? Is there any way in which a strike in some distant city might affect you? Would one on steamship or railroad lines affect you? In what industries would a strike be of greatest significance to the whole country?

13. What is meant by saying that the public is party to every strike?

14. Try to trace one of the ordinary commodities of life, like a shoe or a loaf of bread, through all the different persons or agencies who coöperated in producing it.

15. Are the grocers' delivery men among the coöperators who provide us a loaf of bread? Are the men who work at paving the streets among them? Are the people who pay taxes?

16. Make a list of some of the imports which you use.

17. International trade helps to gratify our wants in two ways. It enables us to get some commodities we could not otherwise get and it enables us to get others more cheaply. Give illustrations.

18. Bananas can be raised in hothouses in Canada. Would Canada be wise to get her banana supply in this way?

19. What are the chief centers of the packing industry? How did these industries happen to locate at these centers?

20. Capital is specialized as frequently as labor. Give a list of examples of specialized capital.

21. Nowadays one machine completes the process of pin-making which in Adam Smith's day occupied many men. Has there been an increase or decrease in specialization?

22. The railroad is a specialized capital good. What specialists were displaced by its coming in? What new specialists came into being? Did its introduction stimulate the *morcellement* or splitting up of the machinist trade into specialists? If so, just how?

23. It is sometimes said that specialization is partly responsible for the increased participation of women in work outside the home. Can you see why this statement is true?

24. There are many cases in modern times where a commodity is produced sometimes in a factory, sometimes in the home. Why should this be so?

25. What are the advantages of homemade goods over factory goods? Give examples.

26. What are the advantages of factory goods over homemade goods? Give examples.

27. Is the entrance of women into department stores and offices "an effect of machine industry upon the work of women"? If so, why? When the factory takes over the making of something formerly made in the home does it create leisure in the home?

28. "Women to-day must be specialists in buying." Explain.

29. Even management has been specialized. Compare the duties of the old-fashioned foreman with those of the functional foreman. Why is it sensible to call this new type of foreman a functional foreman?

30. Work out an organization chart of the public school system of your city. Does it reveal specialization of tasks?

31. Is the teaching work in your school specialized? Is the discipline in your school a function of each teacher or is it a special function of the principal? Is it a function of the students?

32. "Specialization can occur only in a group or society." Why?

33. Why do we not have small forges in our chimney corners nowadays so that we might spend our evenings usefully in making nails, as was common in Colonial days?

34. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 373-374. Selections 141-146.

Bureau of Education, *Lessons in Community and National Life*: Series A, Lesson A-3: Lyon, "The Coöperation of Specialists in Modern Society."

Series B, Lesson B-2: Tryon, "The Varied Occupations of a Colonial Farm."

Lesson B-3: Van Hoesen, "A Cotton Factory and the Workers."

STUDY XI

TERRITORIAL SPECIALIZATION

PURPOSES OF THIS STUDY :

1. To see that there is a specialization of territories.
2. To determine some of the factors that produce this territorial specialization.
3. To consider advantages and disadvantages of territorial specialization.

The localization of the primary industries. — In the preceding lessons we saw specialization of business units and the specialization within these units. But territories specialize as truly as do individuals or businesses. In this study we shall examine the factors which cause this territorial specialization.

The industries which we call primary, such as hunting, fishing, grazing, lumbering, mining, agriculture, and forestry cannot of course be separated from the natural resources on which they depend. It so happens that these resources are much more abundant in some places than in others, with the natural result that these industries concentrate in the more productive regions. Where these regions will be depends first of all upon climatic considerations. The flora and fauna of the earth are grouped in great climatic zones. For example, the zones of vegetation which determine in what broad belts their dependent industries shall lie are as follows :

“The boreal zone has its special vegetation of mosses, lichens, saxifrages, berries, oats, barley, and rye; the temperate zone its peas, beans, roots, hops, oats, barley, rye, and wheat; this zone, characterised by its extent of pastures, hop gardens, and barley fields, has also a distinctive title in the ‘beer and butter region.’ The warm temperate zone, or region of ‘wine and oil,’ is characterised by the growth of

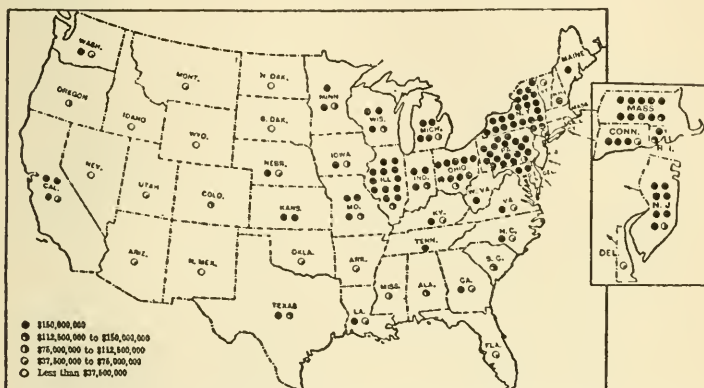
the vine, olive, orange, lemon, citron, pomegranate, tea, wheat, maize and rice; the sub-tropical zone, by dates, figs, the vine, sugar-cane, wheat, and maize; the tropical zone is characterised by coffee, cocoa-nut, cocoa, sago, palm, figs, arrow-root, and spices; and the equatorial by bananas, plantains, cocoa-nut, etc.”¹

Climate determines the zone, but geographical and geological conditions determine what shall be the location within the zone of the primary industries which are dependent upon flora and fauna. They also determine the location without much reference to climate (aside from that of preceding geological eras) of our primary industries dependent upon mineral resources. For example, the climate, together with conditions of water supply and the character of the soil and sub-soil, explain the presence of agricultural industries in our great Middle West and their absence in the desert regions of Arizona and New Mexico; the character and extent of the mineral resources concerned account for the mining industries of Pennsylvania, of northern Michigan, and of Chile; similarly, geographical position with particular reference to accessibility to trade routes and the contour of the land plays its part in determining the fitness of localities for particular lines of primary industry.

The localization of manufacturing industries. — Manufacturing and commercial industries show a concentration in particular localities quite like that shown by the primary industries. Our manufactures are largely concentrated in the northern and eastern parts of the country. It is in these parts that a dense population provides both an adequate supply of labor and a good consuming market. Here, too, a well-developed transportation system makes readily accessible both raw materials and markets. Water power and fuel for steam exist in the quantities necessary for supplying motive force, and several generations of industrial life have caused the development of industrial traditions and a satisfactory business environment.

¹ From Yeats, *The Golden Gates of Trade*, p. 12, quoted by Hobson in *The Evolution of Modern Capitalism*.

The concentration of "manufactures in general" is only one of the important facts. Within this great manufacturing region, particular industries have become concentrated in



VALUE OF PRODUCTS OF MANUFACTURING INDUSTRIES BY STATES, 1909

Notice the concentration north of the Ohio and Potomac rivers.

certain localities. The following table ¹ shows some of the more conspicuous instances of this concentration. It is a list of those industries in which more than two fifths of the total production of our country takes place in a single state. It is interesting to note how often certain states are represented.

LOCAL CONCENTRATION OF CERTAIN INDUSTRIES

INDUSTRY	STATE	PER CENT OF TOTAL VALUE OF PRODUCTS FOR UNITED STATES, 1909
Collar and cuffs	New York	92.3
Grindstones	Ohio	88.8
Artificial flowers and feathers and plumes	New York	88.2
Peanuts, grading, roasting, cleaning, and shelling	Virginia	81.5

¹ Thirteenth Census of the United States, 1910, Vol. VIII, pp. 127-128.

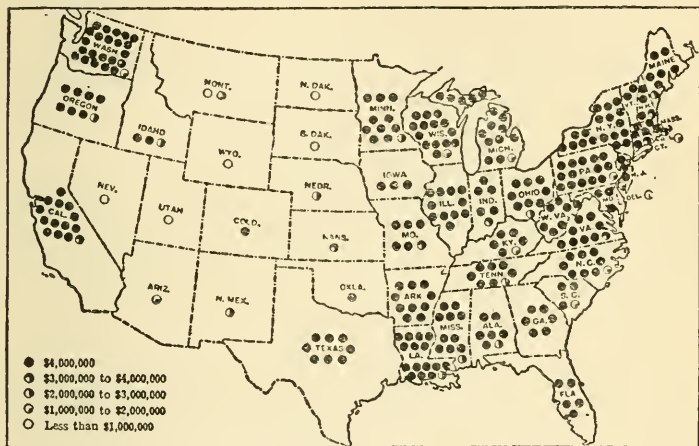
LOCAL CONCENTRATION OF CERTAIN INDUSTRIES—*Continued*

INDUSTRY	STATE	PER CENT OF TOTAL VALUE OF PRODUCTS FOR UNITED STATES, 1909
Plated ware (not including silversmithing and silverware)	Connecticut	77.4
Fur goods	New York	73.8
Clothing, women's	New York	70.8
Hair work	New York	70.1
Liquors, vinous	California	68.1
Pens, fountain, stylographic, and gold .	New York	67.9
Needles, pins, and hooks and eyes . .	Connecticut	63.3
Gloves and mittens, leather	New York	60.7
Millinery and lace goods	New York	60.7
Pipes, tobacco	New York	60.5
Firearms and ammunition	Connecticut	58.6
Rice, cleaning and polishing	Louisiana	56.0
Clocks	Connecticut	55.7
Coke	Pennsylvania	54.1
Iron and steel, steel works, and rolling mills	Pennsylvania	50.8
Turpentine and rosin	Florida	47.2
Furnishing goods, men's (not including collars and cuffs nor suspenders, garters, and elastic woven goods) . . .	New York	46.9
Clothing, men's, including shirts . . .	New York	46.8
Boots and shoes, including cut stock and findings	Massachusetts	46.1
Ink, printing	New York	45.8
Brass and bronze products	Connecticut	44.6
Iron and steel, blast furnaces	Pennsylvania	43.1

Some factors determining the location of manufacturing plants. — The simplest way to see why manufacturing industries have become localized is to study the factors which determine where a given manufacturing plant may wisely locate. These factors vary in their relative importance from industry to industry and from case to case. But taken as a whole they help us to understand both the present local-

ization of industry and the factors making for change of locality.

One of the most important factors in plant location is that of accessibility to raw materials. Here accessibility usually means proximity, for raw materials are generally bulky and expensive to transport, so that the industry which works them up usually settles near at hand. This is especially true in the



VALUE OF LUMBER PRODUCTS BY STATES, 1909

How do you account for the wide distribution?

so-called elaborative industries which perform the first processes in the working up of the materials furnished by the primary industries. The packing industry settled near the stock-raising region of the central west; the coal mines and ore fields of eastern Pennsylvania made that district a specialist in iron and steel production.

Proximity to raw materials is especially important under the following conditions. (1) When transportation facilities have been but poorly developed: you may remember that Shays's Rebellion was connected with the need the farmers felt, in that day of poor transportation facilities, for being unhampered in turning their grain into liquor, since it could be more readily

transported in the more valuable form. (2) When the raw material concerned is very heavy and bulky in proportion to its value so that the cost of transporting it would be a very great part of the total cost of the article to be made. For example, the making of bricks is almost certain to be located near the beds of clay. (3) The point just mentioned is particularly true when the raw material shrinks greatly in volume or weight or has only a small portion used in the process of manufacture. Under such circumstances it would obviously pay to manufacture near the raw materials and transport only the much smaller and lighter and more valuable finished product. (4) When the materials concerned are perishable in nature so that they must be utilized quickly. "Neither cane nor raw juice can be carried far without spoiling. For a similar reason salmon canneries will cling to the banks of the Columbia, while fruit and vegetable canneries will stick close to Maryland orchards and California ranches."¹

Another strong influence in the location of many manufacturing industries is cheap power and fuel. Since modern industry generally uses power-driven machines, a location near the source of power is frequently attractive. This was particularly true in the days when water power was more important than it is to-day. For example, Fall River, Lowell, and Manchester in New England became centers of manufacture partly because of the availability of water power, which of course had to be used right on the spot if it was to be used at all. Nowadays water power can be transformed into electricity and transported many miles. Coal, too, when used for power alone, can go hundreds of miles, since the cost of transporting the small amount of fuel which would be needed for power is not large. In other words, to-day industries need not *necessarily* settle close to sources of power. When much fuel is needed to develop heat, however, it is a very different story. The metallurgical and refining industries, the manufacture of glass and pottery,

¹ E. A. Ross, *The Location of Industries*, Quarterly Journal of Economics, X (1895-1896), p. 252.

and the smelting and forging of iron, tend to be near the sources of fuel supply.

Accessibility to markets is a third important influence. We have often seen that modern specialized, large-scale production could not exist without large markets being accessible. Accessibility does not here necessarily mean proximity, for our modern efficient transportation systems enable us to transport finished products, which are usually goods of high value in proportion to their bulk, quite considerable distances. Some industries, however, must settle near the consumer. "Confectionaries, bakeries, and market gardens must be near him to avoid deterioration of product. Repair work, tailoring, and millinery settle near him. Daily newspapers are published where the readers dwell in order to secure promptitude. The bulk and waste of artificial ice in transportation, as well as the bulk of cooper's products compel them to be made where wanted."¹

A fourth influence is the presence of labor in adequate amounts and in appropriate classifications. Speaking generally, satisfactory labor power will be found in a dense population, such as the modern large city, for here the supply is very great and different grades of skill are likely to be found. Since the dense population means also a large market, it is easy to see why manufacturers show such a tendency to concentrate in metropolitan centers. Sometimes, however, it is advantageous for a plant to locate in some smaller community where it can employ some unused part of the labor supply. "In a factory town where the labor of one sex is exclusively employed, other industries will frequently spring up to utilize the labor of the opposite sex. Thus one of the earliest factories in the city of New Britain, Connecticut, was devoted to the manufacture of carpenter's rules and levels, and employed male labor alone; it was not long before a cotton factory, in which the cheap and abundant labor of women and children could be used to advantage, was planted in the town. A similar tendency has caused the location of textile factories in mining, metal, and machine towns of

¹ E. A. Ross, *op. cit.*

England.”¹ Sometimes, also, the magnitude of the enterprise justifies its promoters in settling outside a large city and building up an independent supply of labor. The building of the city of Gary on what was formerly waste sand dunes is a good case in point.

Another important influence is the momentum of an early start which frequently leads to growth through imitation and through development of special services. It must be admitted that many early plant locations were largely accidental, for in the early days of the factory system people had not yet learned how to locate plants scientifically. When a plant thus accidentally located did a profitable business, it would attract attention and others intending to engage in the same line of manufacture would settle at the same place. This was not a logical act for some other location might have been even more advantageous; it was mere imitation. Presently quite a few plants of this same industry were grouped together and then came related industries, such as those which repaired the machinery of the original industries; furnished them certain raw materials; utilized certain of their wastes; or elaborated certain of their products. In such a community special services and special advantages tend to develop, such as a specialized market in which buyers habitually meet. A labor supply possessing a high degree of specialized skill grows up. Societies or associations for the study of common problems develop; and even a sort of division of labor among employers, in that each one's plant may be devoted to a single process, comes into existence. “Special transport facilities, and the provision of commercial intelligence can be arranged for a localized industry. Scientists, lawyers, accountants find it worth their while to specialize in the problems peculiar to the local industry. Insurance can be effected cheaper. Probably the use of credit can be obtained cheaper where risks and conditions are so well known as they are in a modern specialized locality.”²

¹ Weber, *Growth of Cities*, Columbia Studies in History, Economics, and Public Law, pp. 208-9.

² Clay, *Economics for the General Reader*, American edition, p. 29.

New England furnishes a good illustration of the significance of the momentum of an early start. The development of the shoe-making industry in Lynn is typical. John Dager, a Welch shoemaker, settled in Lynn in 1750 and the later history of the town may almost be said to have been summed up in the preceding paragraph. And not merely the later history of this town, but of New England as well. New England to-day remains a manufacturing center, not primarily because of cheap fuel, cheap power, cheap raw materials, or accessibility to markets, but because her early start has given her special facilities and special advantages. Take, for example, the way in which railroad rates favor New England. Notwithstanding the greater distance involved, the rates on food supplies from west of New York are roughly the same to all points in New England and are not materially higher than they are to the manufacturing districts of New York and Pennsylvania, while the rates on manufactured goods from New England to the great central west have been made such as to enable the New England manufacturer to compete with the New Yorker and the Pennsylvanian. The railroad lines do this so that manufacturers may continue their factories in New England and thus provide the roads with traffic. It is an interesting illustration of the way the momentum of an early start may offset other factors connected with plant location.

Finally, among the major influences determining the location of manufacturing plants must be mentioned social control and social environment. The influence of this factor has already been seen in the case of locations due to imitation. It accounts also in large part for industries remaining in a given location, through habit and inertia, long after it ceases to be economically wise to remain. Then, too, industry naturally prefers to settle in places where the political and social environments are favorable; where property is secure; where peace and order permit business transactions to proceed unhampered; where corporation laws and other rules governing business are satisfactory; where public opinion is not hostile to such enterprise; where

the relations between labor and capital are not strained ; where schools, churches, and amusements exist in sufficient quantity and quality to justify maintenance of homes by workers. Any business manager is naturally much influenced by such conditions.

As a summary of this discussion of the factors determining the location of manufacturing plants notice the following table



VALUE OF AUTOMOBILE PRODUCTS BY STATES, 1909

Do the preceding pages enable you to explain this concentration of the automobile industry in so small an area?

furnished by an engineer who acts as an adviser in such matters. You will notice that he has assigned certain weights or degrees of importance on a scale of ten, to the factors he enumerates. In doing this he obviously has some specific case in mind. The weights would naturally vary according to the type of industry concerned.

*Weighting or weighting the importance of different factors.*¹

1. Weight, $1\frac{1}{4}$; proximity of raw material market, including rail service, water service, and supply.

¹ Harold V. Coes, *The Rehabilitation of Existing Plants as a Factor in Production Costs*.

2. Weight, $1\frac{1}{2}$; proximity to consumer's market, including large cities, rail service, water service, advertising value or influence of plant and competitors.

3. Weight, $2\frac{1}{4}$; labor market, including character of labor and supply, percentage of unemployed females (women and girls), percentage of unemployed boys (above legal factory age), price of labor, cost of living, specialization of labor, influence of climate and associations or unions.

4. Weight, 1; power, including price and character of fuel (coal, gas, oil), hydro-electric or water power, and central station.

5. Weight, $\frac{1}{4}$; influence of climate on labor and on product.

6. Weight, $\frac{1}{4}$; utilization of waste products, including disposal of waste products, market value of waste products, and cost of disposing of same, if unmarketable.

7. Weight, $\frac{1}{4}$; perishability of raw materials and of finished product.

8. Weight, $\frac{3}{4}$; freight rates on raw materials and on finished products.

9. Weight, $\frac{1}{4}$; legislation, regulation, or ordinances, including state legislation (corporation laws, taxes, employers' liability) and municipal, town, or country regulations or ordinances (taxes, factory building inspection).

10. Weight, 1; banking facilities, including size of, handling pay rolls, etc., credit, and general utility.

11. Weight, $\frac{3}{4}$; site of real estate (city, suburb, country), including price of, character of soil, cost of preparing site, foundations, and floods.

12. Weight, $\frac{1}{4}$; building materials, including local sand, gravel, etc., crushed stone, brick, timber, steel, and cement.

Some factors determining the location of commercial enterprises.— Production, including commerce, is undertaken to gratify wants of consumers, and has the task of distributing goods to points of need. The tremendous variety and mass of the products of modern specialized industry flows in great streams to places of distribution. The greatest of these distributing centers is the modern large city, for here are served not only its own population but the population of its supporting territory or "hinterland." Distributing centers range in importance from such great seats of commercial activity as New York or

Chicago, down to the country store at the cross roads or in the mountain pass between two valleys, and always their location is to be explained by the fact that it is a favorable one to reach some group of people, large or small. Because of the great importance of transportation in reaching the consumer these distributing centers are always on some transportation route and usually at its terminus, where occurs the many tasks connected with breaking up the stream of modern products; resorting them, repacking them, arranging them into the qualities and quantities which will please the individual consumer, storing them against future needs, etc. "The great seaport exists because it is a place for the breaking of cargo for ocean ships just as the country store exists because the boxes and wagon loads of miscellaneous supplies must there be divided up into numerous small packages for the individual consumer."¹

If once such a distributing center has been started at a point where conditions justify its growth the significance of the momentum of an early start is again revealed. Special facilities and services develop; functional middlemen (see p. 144) gather to do their tasks; imitation draws in an ever-increasing number of enterprises; certain primary industries, such as dairying and truck gardening, gather about to serve the population and are themselves served in turn; manufacturers enter, tempted by the proximity to the market, the transportation facilities, and the ever-growing labor supply. As the commercial community attracts primary and manufacturing industries, so the coming of these industries enlarges the field of work of the commercial distributors who serve them, both through selling their products and through providing goods for the wants of the agricultural and manufacturing population. "To him that hath it shall be given" as regards urban population to limits not yet clearly known.

Specialization within districts. — In much of the preceding discussion we have been concerned with territorial specialization between relatively large areas. It is to be noticed, however,

¹ J. Russell Smith, *Industrial and Commercial Geography*, pp. 840-875.

that the factors which have caused this specialization have operated also to cause specialization *within* these areas and even to cause it within towns or on particular streets.

The English cotton manufacture is one of the most interesting cases of highly developed specialization within a manufacturing district. In something over a century this industry has increased over a hundredfold, but the area it occupies is not as large as it was in its early days, — the real producing center of to-day being about twenty-five square miles in the English county, Lancashire. Even within this restricted area great specialization has occurred.

“Southern Lancashire with the adjoining parts of Cheshire and Derbyshire, is the spinning and doubling district. In Oldham and its neighborhood, moreover, only coarse and medium counts are spun, whereas Bolton and Manchester are the centers for the spinning of fine yarn. Stockport is preëminently the seat of doubling mills. And in northern and eastern Lancashire weaving predominates; many of the spinning mills formerly located there have migrated southward. Within the weaving district there is a similar local segregation, — the manufacture of fancy cloth in Preston and Chorley, colored fabrics in Colne and Nelson, heavily sized shirtings in Blackburn and Bury, T-cloths and domestics in Bacup, printers (print cloth) in Blackburn, and India and China shirtings in Darwen. In fact almost every town has its specialty.”¹

Such specialization within a district is striking evidence of the importance of localization in bringing about special facilities and special services. Obviously specialization can be carried to such great lengths only when the commodity has high value in proportion to its bulk so that cheap transportation costs make the market world wide.

The principles determining specialization of larger areas also determine territorial specialization within a town or city. (1) The influence of natural conditions is often quite prominent. In a city with a rough and hilly location one almost always finds the streets following the ravines where it is easiest to build roads

¹ M. T. Copeland, *The Cotton Manufacturing Industry in the United States*, p. 277.

and where transportation will not be hampered by hills. On the hills or bluffs are the residence districts, while in the flats, which often lie along a river, are the business section and the factory district. (2) The grouping together in small areas of many units of the same business in order that each may be convenient to customers, and that all may have access to the special service and facilities which such grouping affords is very common.

“The steamship agents and brokers of London, Liverpool, Philadelphia, and New York are all collected into small districts of their respective cities through which one can walk in a few minutes. The London wool brokers have their still more restricted locality and two or three small streets are the headquarters for the general produce brokers. The same is true of the leather merchants of New York and the paper dealers of Philadelphia. An hour’s walk through the wholesale districts of New York, Philadelphia, London, Hamburg, or any of the many smaller cities will suffice to give the observer many examples of this grouping of mercantile firms engaged in the same business.”¹

(3) The desirability of being *near* the consumer accounts for the presence of retail market or store streets in our larger cities at fairly regular intervals of six or eight blocks, and the necessity of *accessibility* to a large market explains the presence of the department stores at the transportation centers of such a city. (4) The influence of the conditions attending the beginning of a city may be seen in the crooked streets of a city like Boston, where they followed paths, or in the location of financial districts in the former centers of towns — a place they chose in order that they might be near the business community of that day. (5) The influence of social control is strong also. Streets are laid out according to pattern ; a park “ system ” is arranged ; zones or districts devoted exclusively to a given purpose are set up.

The continual shifting of industries. — We must not get an impression that territorial specialization means a permanent, fixed, rigid apportionment of areas to specific uses. Quite the reverse is the case. Continual shifting has occurred in the loca-

¹ J. Russell Smith, *Industrial and Commercial Geography*, p. 868.

tion of industries, and as far as we can now see, will continue to occur. The development of transportation and communication, which made possible the opening of the agricultural regions of our great Middle West in the last half of the nineteenth century, drove thousands of acres of land out of cultivation in England and New England, for the farmers tilling the poorer soils of these regions could not compete with the cheaply produced and cheaply transported grains of our West. With the opening of this western region and the drift of population thither a great change occurred in the location of the wholesale drygoods trade of this country. New York City has not retained the proportion of this business it had in earlier days. Western competition, improved transportation, and changes in the sources of raw materials are causing many manufacturers in the eastern part of the United States to consider seriously the desirability of a shift in location. Many other examples might be given where similar shifts have been considered or made.

Upon reflection we should expect this to be the case. Man is ever developing new wants and new arts to gratify them. Scores of kinds of goods are used to-day that our grandfathers did not know, and the old industrial localities are not always well fitted to the new enterprises. In other cases, change of locality may be caused by the exhaustion of some basic natural resource. There are dozens of deserted lumber camps and "dead" mining towns, from which the population has moved, which tell something of how man exploits natural resources. Again, technical improvements and inventions continually shift the relative importance of factors determining plant location. The electric conduit and cheap coal transportation have freed some industries from the necessity of settling near a waterfall or a coal mine; the development of preservatives and the refrigerator car gave other industries concerned with perishable goods more freedom of location; the development of automatic machines freed still other industries from the necessity of settling near a skilled labor supply.

Then, too, social control plays its part. A state railroad com-

mission, by putting some large area under a "blanket" so that from some source of raw materials all points in the area have the same railroad rate, may make for decentralization of the industries of that area. A national protective tariff may build up a new industry and some new industrial center. Finally, there are signs that the industrial forces making for concentration of industries in our metropolitan centers with their congested streets, high taxes, and high living costs may be reaching their maximum. It is certain that decentralization in the form of "satellite" towns is occurring. St. Louis has its Wellston, Edwardville, Granite City, Madison, Venice, Brooklyn, and East St. Louis. Chicago has its Hawthorne, Argo, Pullman, Whiting, Indiana Harbor, East Chicago, Hammond, and Chicago Heights.

Some advantages of territorial specialization. — The outstanding advantage which may be claimed for territorial specialization is increased productivity. After all allowance has been made for minor defects, it remains true that when communities specialize and make the products for which they are best fitted, either through natural endowment or through the development of special services and facilities, the want-gratifying power of mankind is greatly increased. This increased power is worked out through commerce. An account of the conditions determining trade between communities is accordingly really an account of the benefits given by territorial specialization.

An essential prerequisite to territorial specialization is a satisfactory development of transportation and communication. When these facilities do not exist every little group must perforce be self-sufficing. We saw the truth of this statement when studying the medieval manor. Modern means of transportation and communication have, however, become so efficient that we may assume that the prerequisite to territorial specialization has been secured. With this assumed, let us now consider under what circumstances it will be worth while for communities to specialize and to exchange.

A case which every one will understand at once is this: when

a certain locality can produce *only* one good, say diamonds or copper, for example (let us assume it can produce it very efficiently), it will be expedient for that community to trade with the rest of the world. The nitrate deserts of Chile and regions producing tropical spices are good cases in point. In such cases trade enables the specialized district to get commodities it could not otherwise have at all, and enables the rest of the world sometimes to get commodities it could not otherwise have, sometimes merely to get them more cheaply.

There is another case where specialization of localities is worth while. Even though a given district could, as a physical possibility, produce many commodities — could indeed be self-sufficing — it may well gain by trade with other districts, and other districts gain by trade with it. If this community is particularly well fitted to produce some things and only moderately well fitted to produce others, and the reverse is true in other communities, it ought to specialize in its lines of greatest efficiency and secure its other articles from abroad. True, it might be able to make these foreign articles at home at a reasonable cost; but it could secure them at a still lower figure from elsewhere. For example, the soil and climate of Minnesota will produce both wheat and corn, but are better for wheat production. Illinois also can produce both wheat and corn, but is better fitted for corn production. Under these circumstances, it is advantageous for the people of Minnesota to give their major attention to raising wheat, while the people of Illinois specialize in corn raising. The same principle applies to other localities. In Florida, fruit can be raised easily while the cereal crops do not grow so readily, although something can be done with them if enough time and labor are spent. In Illinois and Iowa cereal crops can easily be produced but semi-tropical fruits can be grown in these localities only at considerable difficulty and expense. It is easy to see in what ways these communities would specialize.

A third case is merely a variant of the second. Suppose that a certain community were so blessed with natural advantages,

skilled population, and business organization, that it was the best region in the world for the production of wheat, cotton, iron ore, nitrate, and for that matter, all the rest of the commodities we use to-day. At first glance it might seem that such a community would not care to trade with the rest of the world. But, let us look more closely, using another illustration in our closer view. Suppose that a certain man were the best lawyer, the best stenographer, the best file clerk, the best office boy, and the best janitor in the United States. He would not do all these things. He would specialize in the practice of law, and would hire stenographers, file clerks, office boys, and janitors. The community we have been considering would take a similar course. It would give its major attention to the one thing, or to the small group of things, in which its advantage was relatively most worth while, and would hire others, through trade, to provide it with the rest of the goods it desired.

In this discussion of trade between localities we have not delayed to consider whether the localities concerned are within a single nation, so that it would be called internal trade, or are in different nations so that it would be called international trade. The principles are the same in either case. It is, however, worth noticing that this discussion gives us a certain basis for estimating the value of commercial policies of nations, and particularly the moot question of protection *versus* free trade.

The basis for the free traders' position should now be clear enough. He wants the whole world to be unhampered in the assignment of localities to the making of goods for which they are best fitted; arguing that thus the wants of man will be most fully gratified. Against this position, the protectionist has really only two arguments which are worthy of serious consideration. One of them is the so-called infant industry argument, which in essence is that there is a certain amount of inertia to overcome in starting new industries, even though a community is really well fitted for them, and that accordingly these industries ought to be protected from outside competition in

the period of their infancy. This is, of course, an argument for a temporary tariff and not for a permanent one. The other argument of the protectionist, which is worth serious consideration, is that increased productivity is not necessarily the only goal which is worth seeking. For example, it may be worth while to develop industries for which the nation is really not well fitted, in order that it may be self-sufficing when it is cut off from other nations in time of war. This argument applies particularly, of course, to industries directly and indirectly connected with the making of munitions of war. Another example where increased productivity is not necessarily the ultimate good may be seen in the following section.

Some disadvantages of specialized localities. — Some of the disadvantages of specialization of localities will appear in a later study when we take a summary view of the results of our specialized coöperative way of producing goods. One or two disadvantages will be considered here, however.

When a locality specializes in producing only one commodity, but produces that in vast quantities, the civilization of the whole locality is likely to become stamped with the nature of the industry. There are certain places in the north of Michigan that are so dominated by the copper industry that it is a common saying in the copper camps that "Copper is God." Other towns, such as Pittsburgh, become dominated by the manufacture of steel and thousands of the workers in the steel mills know almost nothing of life excepting steel manufacture. In other districts, mining seems to the inhabitants to be the hub of the universe. The people of such localities become provincial. They think only in terms of the work which they see going on around them. They "do not have many contacts." It is hard to believe that people brought up under such conditions can think independently on questions which are important to the nation as a whole, or to believe that they can have a proper perspective of the value of their work compared with other kinds of industry and commerce.

Charles Dickens, in describing a manufacturing town, gives

a picture of what may result from intense local specialization under certain conditions.

“It was a town of red brick, or of brick that would have been red if the smoke and ashes had allowed it; but as matters stood it was a town of unnatural red and black like the painted face of a savage. It was a town of machinery and tall chimneys, out of which interminable serpents of smoke trailed themselves for ever and ever, and never got uncoiled. It had a black canal in it, and a river that ran purple with ill-smelling dye, and vast piles of building full of windows where there was a rattling and a trembling all day long, and where the piston of the steam-engine worked monotonously up and down, like the head of an elephant in a state of melancholy madness. It contained several large streets all very like one another, and many small streets still more like one another, inhabited by people equally like one another, who all went in and out at the same hours, with the same sound upon the same pavements, to do the same work, and to whom every day was the same as yesterday and to-morrow, and every year the counterpart of the last and the next.

“These attributes of Coketown were in the main inseparable from the work by which it was sustained; against them were to be set off comforts of life which found their way all over the world, and elegancies of life which made, we will not ask how much of the fine lady, who could scarcely bear to hear the place mentioned. The rest of its features were voluntary, and they were these.

“You saw nothing in Coketown but what was severely workful. If the members of a religious persuasion built a chapel there — as the members of eighteen religious persuasions had done — they made it a pious warehouse of red brick, with sometimes (but this is only in highly ornamental examples) a bell in a birdcage on the top of it. The solitary exception was the New Church; a stuccoed edifice with a square steeple over the door, terminating in four short pinnacles like florid wooden legs. All the public inscriptions in the town were painted alike, in severe characters of black and white. The jail might have been the infirmary, the infirmary might have been the jail, the town-hall might have been either, or both, or anything else, for anything that appeared to the contrary in the graces of their construction. Fact, fact, fact, everywhere in the material aspect of the town; fact, fact, fact, everywhere in the immaterial. The M’Choakum-child

school was all fact, and the school of design was all fact, and the relations between master and man were all fact, and everything was fact between the cradle and the cemetery, and what you couldn't state in figures, or show to be purchaseable in the cheapest market and saleable in the dearest, was not, and never should be, world without end, Amen." ¹

Territorial specialization means interdependence and coöperation. — Whatever may be the advantages or disadvantages of specialization of localities, it is clear that when localities do specialize they become quite dependent upon one another. This is only another way of saying that there is coöperation between them. When one region produces chiefly grain and another one manufactures and each then supplies the other with goods they want, it is clear that each is depending on the other and that the people of both have their wants satisfied through coöperation. The Minnesota wheat farmers, whether they think of it or not, and whether they wish to do so or not, are coöperating with the Europeans who eat the grain which they raise. The English workman, the German chemist, the French wine presser and the Italian olive grower are, whether they know it or not and whether they wish to do so or not, coöperating with the Minnesota farmer and producing for him the things which he wants. The people of all countries have become, like the workers in a single plant, interdependent and coöperative.

PROBLEMS

1. Name two or three kinds of goods which could be produced in your neighborhood or region but which you obtain more cheaply through coöperating with the people of other districts.

2. Look in the statistical atlas of the census of the United States or in some commercial geography and find out what districts are devoted primarily to the following industries: corn growing, wheat raising, citrus fruits, cotton culture, producing petroleum, gold mining, coal mining, lumbering.

¹ Charles Dickens, *Hard Times*.

3. Of the industries mentioned above, what four are most highly localized? That is to say, are found in the smallest areas?

4. What is the principal crop raised in the general region of your town or city? Why have the farmers specialized in this crop? If, however, there is no marked specialization in the region about your city, why do you think it has not occurred?

5. In the table showing local concentration of certain industries by states, what kinds of industries are highly localized in New York? Does the presence of a large and dense population help explain why these industries should be concentrated in New York?

6. Select three of the manufacturing plants of your town or city. In the case of each plant answer these questions: Is it in your town to secure proximity to raw materials? To secure cheap power and fuel? To secure proximity to markets? To secure an adequate labor supply?

7. Are there any manufacturing industries in your town or city which seem to have located there by accident? If so, have any special facilities or services developed around them?

8. Has your town or city specialized in the making of certain goods? If so, what reasons can you give for such specialization?

9. Does the railroad serving your town or district, or the local chamber of commerce or commercial club of your town, publish information designed to attract manufacturing industries to your region? If they do, to what advantages do they call particular attention?

10. Can you find out if your community, either through its local government or through some association of citizens, has ever offered special inducements, such as temporary freedom from taxation, cheap land, or reduced rates on power, to persuade manufacturing plants to locate with you?

11. Is it probable that it is in the long run wise for a manufacturing plant to locate in a community as a result of such inducements as those suggested above?

12. Make a list of the expenses which would be involved in moving a plant from one city to another. Does your list help explain why a plant might remain in an unfavorable location?

13. Are there manufacturing industries in your town which are tapping a labor reservoir which would not be used except for the presence of these industries?

14. Suppose you were about to buy a suit of clothes. Would you think several factors important, such as appearance, quality, style, etc.? Are all of equal weight? Make a weighting table for color, fashion, and weaving quality and fit which will express your judgment in buying a suit of clothes.

15. Study the list of factors on p. 177 to determine whether you would accept the weighting there listed if you were studying where to locate a modern cotton manufacturing plant. Read carefully in this connection the account of the specialization which has occurred in Lancashire.

16. Ought the people of cities to produce a greater proportion than they now do of the food they consume? Make a list of as many agencies as you can which are concerned with providing a city with food.

17. Is there a "manufacturing district" in your town? If so, what determined its location? Was it natural conditions? Labor supply? Social control? Or some other factor?

18. Where is the residence section of your town? What factors determined the location of this section?

19. Is there a "central shopping district" in your town? A banking district? Scattered retail districts? Why are these districts located where they are?

20. Make a list of as many reasons as you can why bankers might wish to be grouped closely together in a city. Can you give any reasons for their opposing such grouping?

21. Make a list of the reasons why industries tend to remain in a given locality when once they have settled there. Make another list of the factors making for the movement of industries from one locality to another.

22. The invention of the refrigerator car made possible the shipment of fresh meat for long distances and thus made it possible for packing industries to concentrate near animal-growing districts. Can you cite other cases in which the localization of industry is dependent upon science and invention?

23. "Commerce between localities does not increase the wealth of either section; it only transfers goods from one place to another." Is this true?

24. Why is it truthful to say that international trade is merely specialization of localities?

25. Mr. X is a high-grade lawyer, he is also the best stenographer in his state. Explain carefully just why he is likely to hire some one to do his stenographic work.

26. A is a good musician, but is temperamentally unfitted for other work. B, while fond of music, is efficient only in farming. Is specialization and exchange likely to take place? Would the situation be different if A and B represented regions of different natural endowment?

27. A by one day's labor can make nine units of x or two units of y . B by one day's labor can make two units of x or nine units of y . Would specialization and exchange be likely to take place? Would the situation be different if A and B represented regions instead of men?

28. A by one day's labor can make twenty units of x or ten units of y . B by one day's labor can make fifteen units of x or five units of y . Would specialization and exchange be likely to take place? Would the situation be different if A and B represented regions instead of men?

29. An American statesman of the nineteenth century declared that it was bad policy for the United States to import any commodity that could possibly be produced in the United States. Do you agree?

30. Another statesman urged that no commodity which could be produced in the United States, with the same amount of labor as in foreign countries, could be economically imported. Do you think this position tenable?

31. It has been asserted that the United States ought to produce at home all commodities which are now imported and thus save the cost of transportation which amounts to several hundred million dollars annually. Apply this argument to trade between the Middle West and the Atlantic coast and expose the fallacies involved in it.

32. List the advantages and the disadvantages which come from specialization of localities and be prepared to explain each one.

33. "Commerce leads to interdependence between nations and thus checks the tendency to war." "The international struggle for trade is a potent force to war." With which of these quotations do you agree? Could both be true?

34. Make an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: Selections 89-90, 146, 147.

Bureau of Education, *Lessons in Community and National Life*:

Series B, Lesson B-1: Nagely, "The Effect of War on Commerce in Nitrate."

Lesson B-4: McLaughlin, "Feeding a City."

By making use of the material available in almost any standard collegiate text in economics one or more lessons on international trade, protection, and free trade may be readily introduced at this point. Suggestive of such texts are the following:

Taussig, *Principles of Economics*, ch. 36 and 37.

Ely, *Outlines of Economics* (Third Revised edition), ch. XVIII.

STUDY XII

AN EVALUATION OF SPECIALIZATION

PURPOSES OF THIS STUDY:

1. To see why specialization increases productivity.
2. To study evils which may follow in the train of specialization, and learn how to meet them.
3. To find what limitations, if any, exist to the growth of specialization.
4. To get a summary view of some incidental results of specialization.

The sources of the advantages of specialization. — There can be no question wherein the benefits of specialization lie. They lie in increased productivity. “If any reader doubts the benefits, let him make a list of the things he uses and consumes in the course of a single day, and then estimate the time it would take him to produce these by his own unaided labor; such an experiment will do more than any amount of reading to convince him.”¹ But whence come these benefits? Why does specialization increase productivity?

In the case of territorial specialization the reasons why specialization increases our command over want-gratifying goods are simple enough. Specialization of localities enables people in one locality to draw, so to speak, upon the resources of the whole world; to secure goods from localities better fitted for their production than is their home region — some cases even involving utter inability of the home region to produce them. The details of this situation appeared at some length in the study on the localization of industries. (See Study XI.)

In the case of division of labor proper — the specialization of trades, processes, and operations — the reasons for the in-

¹ Clay, *Economics for the General Reader* (American edition), p. 38.

creased productivity are as follows: (1) The division of relatively complex *trades* into simple *processes* and into even simpler *operations* lessens quite considerably the difficulty of learning the job. The time of learning is accordingly shorter, the waste of materials in learning is presumably less; the productive resources of the individual are more quickly available for society's needs.

(2) The performance over and over again of the specialized task means a greater development of skill and dexterity of both hand and brain than is possible when performing many different tasks. "The estimation of forces and sizes, the exact coördination of hand and eye become instinctive (habitual); by practice is built up the specialized experience which is the explanation of achievement in all kinds of work — the craftsman's 'sense' of the possibilities of his materials, the dealer's 'instinct' for his market, the physician's 'intuition' of disease, the connoisseur's 'feeling' for quality in the objects of his study."¹ Brain, nerve, and muscle coördinate smoothly for the quicker and less tiring performance of tasks.

(3) The differentiation of tasks makes possible the distribution of work so that each may work at the thing for which he is best qualified either by natural endowment or by training. It is a gain that the person gifted with artistic ability may concentrate in the field for which he is best fitted; that each of us may concentrate on that which we do best. This gain may be readily understood by comparing it with the gain secured from the localization of industries. (See pages 182–185.)

(4) The assignment of a worker to a particular task makes possible the fuller utilization of equipment than would be true if a worker passed from one task to another, using (presumably) different equipment for each task. Idle tools or machines represent just so much wasted productive resource. Then, too, the time lost by the worker in passing from one task to another and in getting his thoughts centered on the new undertaking is a factor to be kept in mind.

¹ Adapted from Clay, *Economics for the General Reader* (American edition), p. 22.

(5) Specialization is of great assistance also in securing and retaining that which we have been calling acquired knowledge. "Without division of labor the inventions and discoveries which have made modern man's power over the forces of nature so much greater than that of his remote ancestors, could not have been made, because no man would have had time to specialize sufficiently in the particular lines of study required. When knowledge has once been acquired, it would have often been lost if it were not for the existence of books and instruments and the exertions of a specialized class of educators which could not exist in the absence of division of labor."¹ Who can measure the contribution of acquired knowledge to our powers of want-gratification?

In the case of specialization of management, increased productivity comes from precisely those forces which explain it in the case of division of labor proper, for management is after all merely one form of mental labor.

In the case of specialization of capital, it comes from using for a particular task a device that harnesses the forces of nature. Every tool or mechanical device is, in a sense, a scheme for harnessing natural forces, — witness the electric motor, the gas engine, the locomotive, the wind mill, or the homely crowbar. When, now, a tool or mechanical device is built or arranged for one specialized purpose there is great increase of productive power coming from the fact that great natural forces are directed specifically to one end.

Possible disadvantages connected with specialization. — Just because specialization increases productivity and because there are ample reasons why it has the power to do so, it does not inevitably follow that society gains by specialization. It is entirely possible, for example, that the increased productivity might be along harmful lines. Society is presumably not the gainer by increased productivity of the swindler, the counterfeiter, the robber, or the gambler; it is presumably not better off for an abundance of goods making for debauchery, either

¹ Edwin Cannan, *Wealth*, pp. 41-51.

mental or physical. Even if the increased productivity were not along harmful lines, society might not be the gainer if the product were so inequitably shared among the members of the group as to make for deterioration rather than progress. Both of these points will have to be discussed a bit later. We can at this time realize that there is a place for social control of specialization.

Moreover, what is society? Perhaps it were better not to attempt a definite answer to this question at this time, but it can certainly be said that in society there are individuals. Now it might be that specialization would be so harmful to certain individuals as to quite offset the gains flowing from the greater productivity it made available for society's use. Can individuals be thus adversely affected? We saw the possibility of this happening for whole groups of individuals in our discussion of localization of industries. Dickens's Coke town (see p. 186) should stand for us as a warning against a very real danger.

The same possibility of harm to individuals exists in the case of division of labor proper, especially when this division has reached the stage of narrow *detailed operations*. The repetitive performance of a narrowly specialized task may mean terrible monotony and fatigue. It may even cause the breakdown of nerve centers with resultant serious injury to health. At the very least it may mean lack of interest and accordingly inefficient work. "A man can get no pleasure from his work when it imposes a constant strain upon the same muscles and nerves; when the tedium of constantly repeating the same narrow movements compels the cultivation of indifference; when strict confinement to a single process hides from him the true purpose and utility of his work; and he cannot claim any single whole commodity as the product of his labor."¹ The work of the modern operative in a cotton mill or a shoe factory is certainly a very far cry in its interest and educational significance from the situation revealed (p. 48) in the statement of how men were trained for business in the days of the craftsmen.

¹ Hobson, J. A., *The Social Problem*, pp. 226-230.

It must be remembered, however, that this is not the whole story. The interest and educational significance *within* the operative's daily task may be far less than it was in non-specialized industry, but specialization has made possible an environment *outside* his daily task which goes far to offset its evils. The modern world's variety in consumption diet; its contacts with new commodities, new persons, and new ideas; its increased leisure, and income, and its safety from famine, and pestilence, may largely be credited to specialization.

Narrow specialization may be harmful to the worker, also, in that he becomes fitted for but one small task "with lessened adaptability and capacity for undertaking novel work" and some shift of the consumers' desires, or some happening within industry, such as a new invention, may throw him out of employment, leaving him with little ability to take up some other line of work. The point must not be carried too far, for division of tasks through specialization renders it easier to take up a new line of work than would otherwise be the case.

But even on grounds of productivity alone there are certain aspects of specialization which give us pause. Already the prevalence of specialized machine industry is causing a dearth of the all-around mechanic, with "general intelligence and training," with ability to "find himself" in a new situation, with ability to rise to emergencies. Few things are more common these days than the complaint of our captains of industry of the dearth of men fitted to assume positions of responsibility; of the plethora of men with lack of vision and imagination. Very likely specialization is not solely to blame for this situation, but it is certainly largely to blame. A moment's reflection, however, will show that the remedy lies not in the abolition of specialization, but in the development of systems of training and education which will provide men of the quality needed.

And after all, there may be higher goals than productivity. Production is not an end in itself. The goal of our economic activity is man. We have seen (p. 185) how political consid-

erations, such as the maintenance of national life, may justify disregarding economic considerations of increased productivity and may justify abandoning territorial specialization with respect to certain goods in order that the nation may be self-sufficing in time of war. Increased productivity can scarcely be set up as the "ultimate good" from all conceivable points of view.

The limits of specialization. — In the light of all the facts, few people will deny that the advantages of specialization far outweigh its disadvantages. The rich and varied social and economic life which we enjoy to-day could not have existed without it. Our analysis of its disadvantages should leave with us not an impression that specialization should be abolished but an understanding of the points at which it needs correction in order that it may in the future be made even more useful to man. It ought to be possible for specialization to play a larger and larger part in our industrial life, — and that with the attendant evils continually diminishing.

But how far can it be carried? What are the limits of specialization? The answer to these questions may be more easily understood if we bear in mind that specialization, in our industrial life, has two aspects. There is, first, the splitting up or differentiation of tasks, and there is, second, the knitting together of the specialists into a producing mechanism.

As far as the splitting up, or differentiation is concerned, the chief factors which limit specialization are (a) the nature of the employment and (b) considerations of technological efficiency. Farming is an employment that will illustrate the first of these. "Agriculture is not susceptible of so great a division of occupations as many branches of manufactures because its different operations cannot possibly be simultaneous. One man cannot be always plowing, another sowing, and another reaping. A workman who practices only one agricultural operation would be idle eleven months of the year."¹ It is clear enough that the seasonal character of the work is largely responsible for

¹ John Stuart Mill, *Principles of Political Economy*, I, 175.

this situation, and seasonal work is to be found in many occupations.

The technological limits of specialization are very remote. They will have been reached only when science has exhausted its possibilities of developing special devices and processes for special uses. Keeping in mind that machines specialized to perform one small task may be integrated or combined into automatic monsters (see p. 152), it becomes clear that we are to-day so far from having reached this limit of specialization that, for practical purposes, there is no limit.

Of course, we are not interested in differentiation as a laboratory experiment. The ultimate goal of economic activity is man, not experimentation. As we know, the differentiation must in this case be followed by correlation, which is, in our society, accomplished by authority and through exchange. In practice, differentiation will not be carried to lengths which cannot be justified by our correlating agencies. Let us therefore look at the limits of specialization from the point of view of these agencies.

In correlation through authority the significant element is, of course, administration or management. How far, accordingly, the differentiation which is to be coördinated by authority can wisely be carried, depends, in part, upon our development of administrative ability, and administrative technique. In these fields we have apparently only scratched the surface. Accounting, though it dates back to the Italian cities of the middle ages, is still in its infancy as an instrument of control in the hands of the business executive, as are also business research and business statistics. The use of the intra-plant telephone, classification symbols, control of operations through control boards, and all other communicating and computing aids of business administration are in their veriest beginnings. So true is all this that it is generally admitted that the outstanding limitation to the growth of the single business unit is, at the present day, the limitation of administrative talent and technique.

In coöperation through exchange the significant element is the market. Specialization can, as we know, wisely be carried on only as far as the market will justify. We may then approach the subject of the limitation imposed by the market by asking this question: what factors make for a large market?

First of all there is the problem of the number of people who can be reached and the range of their desires and their purchasing ability after they have been reached. Consideration of such a problem involves consideration of the rate of increase of population; of the facilities for communication and transportation which make for the accessibility of large areas; of the richness of the intellectual life of the region; and of the range and productivity of their economic institutions. Speaking in general terms, the last hundred years have witnessed a great extension of the market. Specialization may be carried to great lengths as far as the size of the market is concerned.

There is one factor of the extent of the market which we have been assuming in our discussion thus far and which should now be emphasized. A broad market and wide exchange can occur only when satisfactory instruments, or implements, of exchange have been made available. In the old days of barter economy, difficulties of exchange were very great. A very important one was the so-called double coincidence of barter. One person bartering with another must happen to have the article the other desired, and must himself happen to desire the other's commodity. Not only this, these commodities must happen to be divisible into "barterable" units, so to speak. The owner of a horse might wish to barter for a hat, and the owner of the hat might wish the horse, but with one horse worth a hundred hats it is not probable that exchange would occur, for presumably the horse's owner does not wish one hundred hats.

The coming in of the use of money furnishes a common denominator, a general translator of the values of commodities. When it became possible for the horse's owner to trade his horse for three hundred pieces of money, and then take three of those pieces and buy a hat, exchange had been tremendously

facilitated. One writer has well said, "Money is an oil on the machinery of exchange." Surely it is evident that had barter continued to be our method of exchange — had money economy never emerged — markets could never have become wide, and specialization could never have been carried far. In a later study we shall see how the use of money in exchange is related to the use of credit and to the use of a whole network of financial institutions which render various services — among them the facilitation of exchange.

Closely connected with the facilitators of exchange — being indeed but another aspect of the same matter — is what we call *market organization*. Market organization is not easy to define, for our society is so much a market society that in a very real sense every specialist is a part of our market organization. There are, however, certain business units that specialize in marketing operations as, for example, the exchanges, wholesalers, retailers, jobbers, and brokers. These business units, together with the other business units (such as banks, railroads, and insurance companies) which serve them all, operate in terms of the business and social environment of the day. This bewildering complex is sometimes called our commercial or market organization. Clearly, an effective market organization facilitates exchange and makes for a wider market. An ineffective market organization cramps exchange and leads to a cramped market.

Everything considered, what we may expect concerning the growth of specialization in the future is quite clear. Its gains are many and forces checking its growth are neither numerous nor powerful. Probably the greatest single limitation lies in undeveloped administrative technique. That is to say, managers of business units still have much to learn concerning how to organize and manage large businesses made up of specialists. But the lack of development in this field of administration is to be ascribed to its newness and not to any insuperable difficulties. Our society seems certain to become more and more specialized.

Interdependence results from specialization. — The outstanding result of specialization is greater productivity than formerly. It is worth while to point out some further results if only to make us alert for their recurrence in later chapters.

The interdependence flowing from specialization is worth taking up again that it may be seen as a whole. As our economic organization has become more and more specialized it has grown more and more interdependent. One sees quite vividly the degree of his interdependence when he thinks about the answer to such questions as these. For how many of the clothes which you are wearing are you dependent upon the efforts of some one else? How many of the articles of furniture in your home were made by others? For what proportion of things eaten at your table is the productive work of other persons responsible? How many persons took part directly or indirectly in producing the chair in which you are sitting or the shoes which you are wearing? How many articles which you ate at your last meal came from outside your city and how many from outside your own country?

The dependence of persons upon other persons is not the only form of interdependence which follows specialization. We have seen that our business units and our specialized middlemen are dependent upon ranges or series of other specialists. There is thus interdependence between industries, trades, and professions. Then, too, our industries are interdependent because they all rely upon the same limited supply of social resources, land, labor, capital, and acquired knowledge. The utilization of any part of this energy at a given time for one industry or for one purpose affects the amount that is available for other industries or other purposes. The growth or decline of one pursuit is thus a matter affecting in various ways the welfare of all others.

The interdependence of our business processes is well illustrated by the interdependence of prices.¹ The prices which retail merchants charge for consumer's commodities are related

¹ W. C. Mitchell, *Business Cycles*, pp. 27-31.

to each other through the principle of substitution. An advance in the price of one commodity usually creates an increased demand for available substitutes and thus favors an advance in the prices of these substitutes. The prices of goods sold to consumers are, of course, related not only to the demands of consumers but also to the prices the merchants had to pay the producers. The prices charged the merchants by these producers are related not only to the demands of the merchants (who reflected the consumer's demands) but also to the cost of the various goods the producers employ in manufacture and distribution. This goes back to raw materials, and the prices of raw materials are related intimately to the prices of labor, current supplies, machinery, buildings, land, loans, leases, etc., which the farmers, miners, lumbermen, etc., employ. The price of labor (wages) is intimately related to the prices of consumer's goods; to the cost of living. And most of the less tangible services, loans, transportation, insurance, are the subjects of an organized business traffic, and the prices charged by the bank, the railway, and the insurance company are systematically related both to the prices which these enterprises must pay for their own goods, and to the prices of the wares dealt in by the enterprises which borrow money, ship goods, and carry insurance. Note also that present prices are affected by prices of the recent past, and by the anticipated prices of the near future. The price system has thus no definable limits in time and its system is an endless chain. This interdependent price system is typical of the interdependence of our whole business structure.

Our interdependence has an impersonal character. — In spite of the fact that we constantly use the work of other people and specialize in doing work which is useful to other people — in spite of the interdependence of modern society we come in little personal touch with our fellow coöperator. Our relationships are impersonal. Under the old gild system, by way of contrast, the master craftsman and his workmen living in the same house ate at the same table and knew intimately the

personal affairs of one another. The craftsman who made shoes, clothing, or implements for a buyer in the same locality frequently made them for some one with whom he had a personal acquaintance and who would take a personal interest in the goods which he had purchased. On the other hand, the specialized employee in a modern factory does not know his employer and may be known to those in authority only by number. He cannot even guess who will wear the shoes that he helps to make. The farmer who produces food supplies does not know the city dwellers who consume them, nor can producer or consumer in such a relationship feel a personal interest in one another. In hundreds of other ways, some of which we shall consider more fully later on, has specialization, combined with other features of our economic system, made for impersonality.

Specialization has resulted in a more speculative society. — Specialization has made business undertakings more speculative. It has brought new risks. Under it one producer is dependent upon others so that he, blameless himself, may suffer loss because of the failure of some one else to carry on his task successfully. (See Study XXI.) Then, too, in a specialized society, production takes place for an anticipated demand of the future. It takes months for a good to be made — for the materials to pass through the hands of the various series of specialists and meantime the demand may have disappeared. We shall get a more detailed view of the risks that arise from specialization in Study XXI, where we study the work of the modern risk-taker or business enterpriser.

PROBLEMS

1. What advantages to society as a whole flow from specialization? In answering this, were you thinking of territorial specialization, division of labor proper, specialization of capital, specialization of management, or specialization of business units?

2. Give three illustrations of the way in which division of labor saves the time of the worker and makes possible a better utilization of equipment.

3. "Division of labor promotes invention by standardizing a process and thus pointing out how it may be taken over by a machine." "Division of labor hinders invention by deadening human faculties." With which quotation do you agree? Can both be true?

4. "Specialization makes possible a greater quantity and better quality of goods." "Better goods were produced when the same man performed all the steps involved in making them." Which quotation do you think correct?

5. Make a list of the advantages of division of labor to the managing owner of a business. Are there cases where these advantages to the owner might also be advantages to the individual worker? Are there cases where they might be disadvantages to the worker?

6. Can you cite any possible disadvantages which may come to the managing owner of a business through his using highly specialized workers?

7. Coöperation of specialists is advantageous because it enables us (*a*) to enjoy goods which we could not ourselves produce, (*b*) to enjoy a larger quantity of many goods, and (*c*) to enjoy a better quality of goods. Demonstrate and illustrate each of these points.

8. In what ways does specialization "greatly facilitate the acquisition and retention of the sum of knowledge, which is transmissible from one generation to another"?

9. "Whatever unpleasant effects the division of labor may have as regards monotony and strain, they may be counteracted and mitigated." Just how? Is the quotation true?

10. "In the case of specialization of management increased productivity comes from the same forces which cause it in the division of labor proper." Explain.

11. Can you list any disadvantages which may come to society from division of labor proper? From territorial specialization?

12. Draw up in parallel columns the advantages and the disadvantages which you think the modern specialized worker in a cotton mill has secured from specialization.

13. Why is it that a country store keeps a little of everything while some city stores deal only in single "lines" such as shoes, or china, or sporting goods?

14. In a shoe manufacturing plant specialization is carried to great lengths. In a shoe repair shop specialization is not carried to very great lengths. How do you account for this?

15. "Farmers are behind the times. They do not make use of specialization. The result is small production of goods and high prices." Comment on this statement.

16. "The outstanding limitation to specialization to-day is the limitation of administrative talent and technique." Just why is this a limitation to the growth of specialization? Is it a permanent limitation or is it one which can be overcome? Can you name any things which are being done to overcome it to-day?

17. List the elements necessary for us to have a "wide market."

18. Had money economy never emerged specialization could never have been carried far. Explain just why.

19. Have widening markets led to specialization or has the increased productivity of specialized industry led to pressure for wider markets? Is it possible that both things have occurred?

20. Is there interdependence between you and other persons in your town? Between you and persons outside your town?

21. "Every article of a man's consumption is in a sense competing with every other article for a larger share of his expenditure." Is this true? Is there interdependence in our wants?

22. A voter in an eastern city recently refused to vote for a certain man as a representative to Congress unless he would agree to introduce a bill abolishing the Department of Agriculture. He argued in this fashion: "This is a manufacturing district. Why should we pay taxes for the support of a department which aids only the farmer?" Comment on this view.

23. In India to-day there may be considerable loss of life by famine due to the failure of crops in some one district. How does it come that this is more likely to occur in India than in America?

24. "Each person or community tends to gain from any increase in the economic efficiency of other persons or communities with whom said person or community maintains economic relations." Just how?

25. "If some of the specialists in our interdependent society cease to function, many others will be seriously affected." Is this statement true? If it is, give three examples.

26. "One evil of interdependence, and one that is commonly overlooked, is the fact that the stamina of individuals is weakened by so much leaning on others." Is this true?

27. "There is a primitive law of reciprocity in our modern interdependent society. Interdependence implies that each shall perform some function economically and well." Explain and give illustrations.

28. "The fundamental grievance of groups or classes against other groups or classes in modern society is that the supposed offenders are violators of this primal law of reciprocity." Explain and give illustrations. Is there here a partial explanation of the distrust between labor and capital?

29. "Our specialized society is shot through with impersonal relations." Explain what is meant and give five illustrations.

30. "If the world were populated by hermits, each home would practically be a world by itself having nothing to do with other homes." Would there be interdependence in such a world?

31. "A football celebration in which windows are broken may harm householders but it is a good thing for labor for it gives employment." Prove or disprove this on the basis of the thought suggested by our interdependence.

32. "Such events as the Galveston flood are not unmixed evils, for they give employment to labor." What do you think of this statement?

33. "All labor is noble." "Every calling is sacred." "There is little use in trying to distinguish between sacred and secular callings." What light does the great coöperation of our modern society throw on these statements?

34. Make an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 373-377. Selections 148-155.

Bureau of Education, *Lessons in Community and National Life*:

Series B, Lesson B-12, Powell, "Impersonality of Modern Life."

STUDY XIII

MACHINE INDUSTRY — AN EXAMPLE OF MODERN TECHNOLOGY

PURPOSES OF THIS STUDY :

1. To see that there have come into use in industry methods which we call a new technology.
2. To see how one of these methods — machine industry — helps in want-gratification.
3. To observe the growth and pervasiveness of machine industry.

The new technology and the rise of machine industry. — “The whole history of human civilization is a history of successive inventions and larger mastery of natural forces. Our present advantages come not from our superior minds but from the fact that each generation has added something to the stock of devices that men have learned to employ.” We caught a hint of this situation in our discussion of specialization. (See p. 194.) In this lesson we shall try to see in greater detail man’s indebtedness to technology.

Primitive man was not without his devices to aid in the struggle to gratify wants. Indeed, he possessed some of the most remarkable ones we know about. He had fire, the bow and arrow, pottery, weaving devices, boats, and domestic animals, and was able to make use of certain metals. This list may seem to us to-day a small one but its importance may be seen by asking ourselves how early man would have fared without them.

An outstanding characteristic of all the technical devices from the time of primitive man down to the seventeenth century is this: they were not based on any scientific knowledge of underlying principles; they were the result, sometimes of

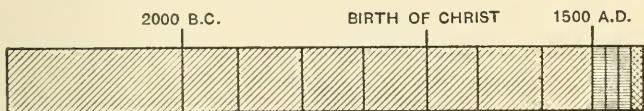
accident, sometimes of experimentation through trial and error, but they were not "thought out" as a modern scientist would think them out. They grew slowly and painfully *out of experience* and were handed down from one generation to another, accumulating over many centuries of time.

The last three hundred years have witnessed a very different situation. Modern experimental science which developed fundamental natural laws began in the seventeenth century, and from that time on new methods could be "thought out" through the application of these laws. Sometimes we say that this is a change from "rule of thumb" to "rule of law." Whatever we choose to call it, it marked the beginning of a great forward movement in the application of science to the needs of man. It would be hopeless to try to enumerate these applications. They include all that is embraced in such technical knowledge as economic geology, economic and commercial geography, industrial chemistry, mechanical engineering, mining engineering, scientific agriculture — to make only the beginnings of a catalogue. "Modern technology" is the inclusive term for them.

We shall not have time to study all of the sciences in this work. Other studies give themselves up to certain of them. We shall study only one form of this modern technology — machine industry. But we ought to remember that machine industry is selected for study *as an example*, and that to it must be added the results of all sciences if one is really to appreciate the significance of modern technology. We have already seen what we call the beginnings of machine industry in our study of the Industrial Revolution. We know that the machine came in "suddenly," if we do not count the long period of preceding preparation. A generation was enough in which to revolutionize the cloth-making industry; a half a century spanned the revolution in many other industries; a century sufficed to bring all the western part of the world under the influence of the machine, and to see it applied in manufacture, in agriculture,

in mining, in transportation and communication. The accompanying diagram shows how brief has been the reign of the machine. We shall do well to remember that its reign has been brief when we come to our study of social control of machine industry.

What a machine is. — We should learn to appreciate the difference between *tools* such as the hammer, the auger, the chisel, the carpenter's plane, and the needle, and *machines*



TIME DURING WHICH THE HAND SPINDLE WAS THE ONLY FORM OF SPINDLE KNOWN.



SPINNING WHEEL ALSO KNOWN.



STEAM HAS BEEN APPLIED TO SPINNING.

From First Report of Labor Museum, Hull House, Chicago

THE BRIEF LIFE OF MACHINE INDUSTRY

Had you ever thought how short a time, measured against human history, we have had our present-day methods of production?

such as the steam trip hammer, the boring mill, the metal shearer, the metal planer, and the sewing machine. If you will think over the uses of the *tools* here mentioned you will realize that they are guided in their operations by the human hand. If now you will look at the *machines* mentioned you will see that these same tools, or their equivalents, are set up in a mechanism and are guided and controlled by that mechanism rather than by the human hand. Just here we have the

essential difference between a tool and a machine, and from this difference follow many significant consequences.

While the foregoing states the outstanding difference between tools and machinery,

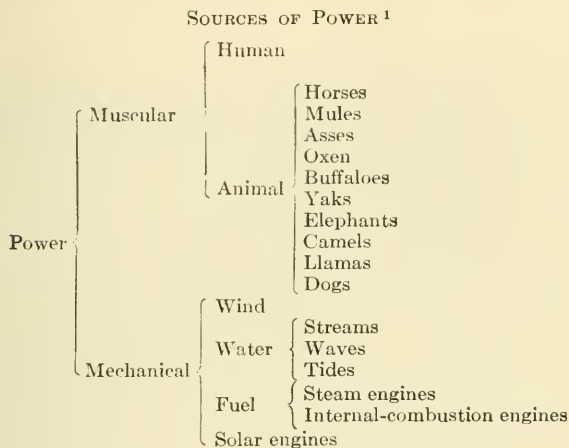
“All fully developed machinery consists of three essentially different parts, the motor mechanism, the transmitting mechanism, and finally the tool or working machine. The motor mechanism is that which puts the whole in motion. It either generates its own motive power, like the steam engine, the calorific engine, the electro-magnetic machine, etc., or it receives its impulse from some already existing natural force, like the water-wheel from a head of water, the windmill from wind, etc. The transmitting mechanism, composed of fly-wheels, shafting, toothed wheels, pulleys, straps, ropes, bands, pinions, and gearing of the most varied kinds, regulates the motion, changes its form where necessary, as for instance from linear to circular, and divides and distributes it among the working machines. These first two parts of the whole mechanism are there solely for putting the working machines in motion, by means of which motion the subject of labor is seized upon and modified as desired. The tool or working machine is that part of the machinery with which the industrial revolution of the eighteenth century started. And to this day it constantly serves as such a starting-point, whenever a handicraft, or a manufacture is turned into an industry carried on by machinery.

“An organized system of machines, to which the motion is communicated by the transmitting mechanism from a central automaton, is the most developed form of production by machinery. Here we have, in the place of the isolated machine, a mechanical monster whose body fills whole factories, and whose demon power, at first veiled under the slow and measured motions of his giant limbs, at length breaks out into the fast and furious whirl of his countless working organs.”¹

Wherein the machine helps. — The modern machine is, then, a mechanical means of operating tools which are not essentially different from those used by a craftsman. We make ever greater use of the machine to-day because it means increased power of production. Whence comes this increased power?

¹ Adapted from Karl Marx. *Capital*, 1, pp. 407–417.

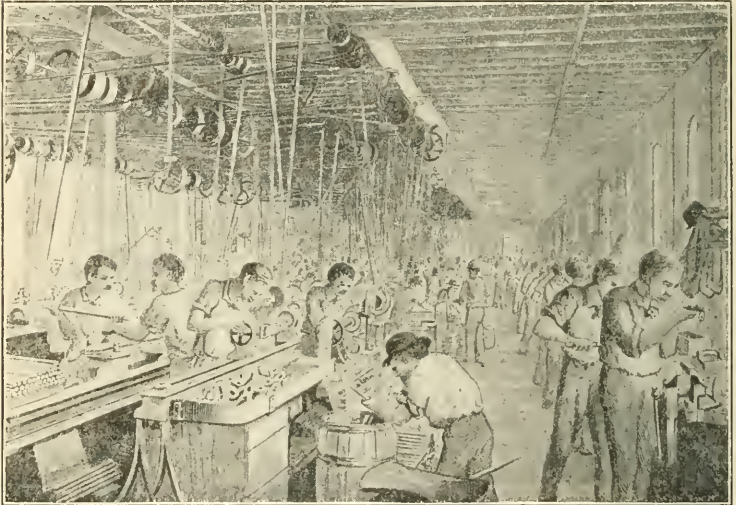
(1) The machine harnesses for our use great natural forces. The more obvious illustrations of this contribution by the machine are seen in the harnessing of the winds by the windmill; of the waterfall by the water wheel; of electricity by the dynamo; and of the expansive power of gases by the steam



and internal-combustion engines. But these are only the more obvious illustrations. The lever, the pulley, the inclined plane, the screw, and the wedge — tools in themselves — when combined in modern machines unlock mechanical powers of tremendous service to man. (2) It is not merely that these natural forces are harnessed; they are harnessed in such a way as to bring giant forces to bear at any point of need. Picture a group of people aided by simple tools alone trying to bring to bear on “the vital square inch” of surface the force exerted by the modern steam hammer, or picture them with simple tools trying to roll a sheet of armor plate, and a vision is secured of the forces modern machinery can bring to bear on points of need. (3) And the machine works with a continuity, regularity, and speed which the human organism cannot hope to equal. Machines are untiring; they can work day and night without

¹ Carver, *Principles of Political Economy*, p. 141.

relief or rest. They perform the same operation over and over with a regularity that no human hand can achieve. Their speed is limited only by the speed of the driving mechanism (which through the application of the principle of the lever is almost unlimited) and the strength of the materials of which they are composed. Man is no rival of the machine in its own sphere. (4) And this sphere includes an uncanny certainty



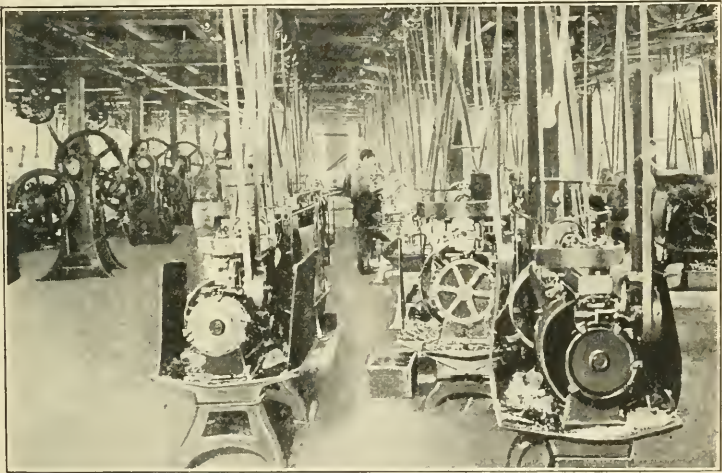
Courtesy International Harvester Co. of America

HAND METHODS IN 1885

Compare this picture with the one on page 213 where similar work in a modern plant is shown. Notice particularly the difference in the number of workers.

of direction and an exceeding fineness and delicacy of touch. No person could place letters so precisely in line or could so accurately space the lines as does the properly adjusted typewriter; few hands, aided only by simple tools, could perform the delicate operations of watch-making and even these few hands could not do so sufficiently accurately to make possible that commonplace of machine industry, — “interchangeable parts.”

“In the last resort all our productive efforts amount to shiftings and combinations of matter. But the natural forms of matter are often so infinitely large, often so infinitely fine, that human hands are too weak or too coarse to control them. We are as powerless to overcome the cohesion of the wall of rock when we want building stone as we are, from carbon, nitrogen, hydrogen, oxygen, phosphor, potash, etc., to put together a single grain of wheat. But there are other powers which can easily do what is denied to us, and these are the



Courtesy International Harvester Co. of America

SHAFTING ROOM IN McCORMICK REAPER WORKS

The automatic screw machine room where rows of automatic machines shape and fashion innumerable small but essential parts of harvesting machines.

powers of nature. There are natural powers which far exceed the possibilities of human power in greatness, and there are other powers in the microscopic world which can make combinations that put our clumsy fingers to shame. If we can succeed in making those forces our allies, in the work of production, the limits of human possibility will be infinitely extended. And this we have done.”¹

Our modern technological method of production is often called the roundabout method of production. It is roundabout

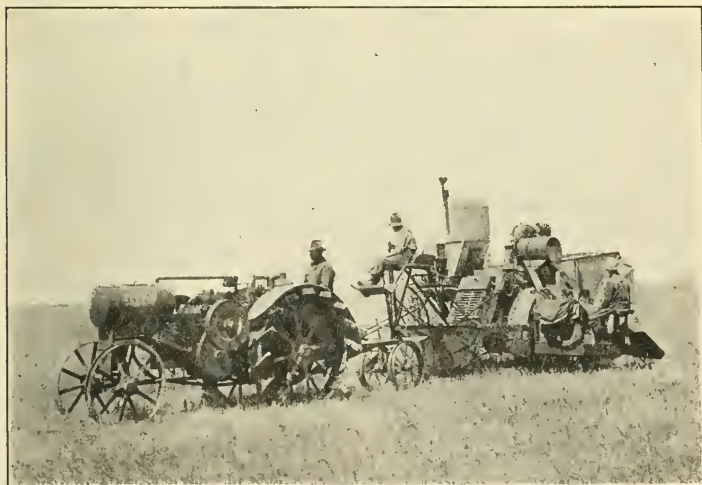
¹ Adapted from Eugen von Bohm-Bawerk, *The Positive Theory of Capital*, pp. 18-22.

because, instead of producing directly the things which we want, we first create the instruments and facilities with which to make them. Plainly we do this because roundabout production means increased production. In fact, the roundabout method has made it possible for us to accomplish many things which we could not otherwise accomplish at all. The following is a classical illustration of this fact.

“I am short-sighted, and wish to have a pair of spectacles. For this I require ground and polished glasses and a steel framework. But all that nature offers towards that end is silicious earth and iron ore. How am I to transform these into spectacles? Work as I may, it is as impossible for me to make spectacles directly out of silicious earth as it would be to make the steel framework out of iron ore. Here there is no immediate or direct method of production. There is nothing for it but to take the roundabout way, and indeed, a very roundabout way. I must take silicious earth and fuel, and build furnaces for smelting the glasses from the silicious earth; the glass thus obtained has to be carefully purified, worked, and cooled by a series of processes; finally, the glass thus prepared — again by means of ingenious instruments carefully constructed beforehand — is ground and polished into the lens fit for short-sighted eyes. Similarly I must smelt iron in the blast furnace, change the raw iron into steel, and make the frame therefrom — processes which cannot be carried through without a long series of tools and buildings, that, on their part again, require great amounts of previous labor. Thus, by an exceedingly roundabout way the end is attained.”¹

The productivity of machinery. — Probably the preceding statement of wherein the machine helps, together with a little reflection on our part of the time which would be involved in making with simple tools the products which we now use in one day, would be satisfactory evidence to almost any one that the machine is productive; that it aids us greatly in our active adaptation struggle. And, indeed, it is satisfactory proof. There may be added to it, however, certain striking bits of evidence.

¹ Eugen von Bohm-Bawerk, *The Positive Theory of Capital*, pp. 18-22.



Courtesy International Harvester Co. of America

MACHINE INDUSTRY IN AGRICULTURE CONTRASTED WITH HAND INDUSTRY

The lower picture shows a harvest-thresher in operation. This machine cuts, threshes, cleans, and bags the grain in one operation. Each outfit cuts, threshes, cleans, and bags twenty-five to thirty acres a day. The upper picture shows men cutting grain with scythes. These three men can cut perhaps four acres a day. This is time required for cutting alone.

One writer gives the following table¹ in which he points out the number of bushels of certain crops produced in given years and shows, by a computation which we do not need to reproduce, what percentage of the crop might properly be attributed to the use of machines. In summarizing his table he says,

“The increased effectiveness of man-labor power, when aided by the use of machinery as indicated by these figures, varies from 150 per cent in the case of rye to 2244 per cent in the case of barley. From this point of view, a machine is not a labor-saving but rather a product-making device. Taking the percentage of labor saved as indicating the average proportion of these crops due to the use of machinery, it appears that the quantity of product is almost five times as great per unit of labor as it formerly was.”

NAME	CROP OF	DUE TO USE OF MACHINERY	PERCENTAGE OF PRODUCT DUE TO MACHINERY
Barley	1896	66,722,384 bu.	95.7
Corn	1894	739,242,030 bu.	60.9
Cotton	1895	4,642,122 bales	64.8
Hay	1895	38,276,901 tons	81.3
Oats	1893	570,421,543 bu.	89.2
Potatoes	1895	193,534,049 bu.	65.1
Rice	1895	122,381,853 lb.	72.5
Rye	1895	16,337,275 bu.	60.0
Wheat	1896	404,438,856 bu.	94.5

The productive power of machinery has been shown in manufacture even more strikingly than in agriculture.² The following instances, though disconnected and taken at random, show this power. The best flour mill in Athens at the time of Pericles produced only two barrels of flour in a day; one of the mills in Minneapolis produces enough to fill 17,000 barrels. In the early part of the last century a skilled workman could

¹ Adapted from H. W. Quaintance, *The Influence of Farm Machinery on Production and Labor*, Publications of the American Economic Association, Third Series, Vol. V.

² The illustrations given here are taken from *Lessons in Community and National Life*, *passim*.

make in a day about thirty needles ; at the end of the century a girl with the help of a machine could make in a day 500,000 needles. Ore vessels on the Great Lakes, 600 feet long, are loaded



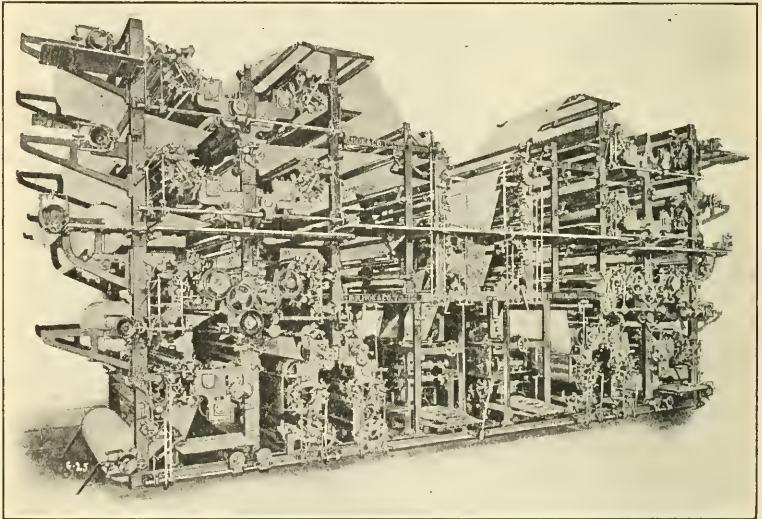
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UNLOADING ORE FROM LAKE STEAMERS

Notice the vessel in the background and the giant machine beside it.

with 10,000 tons of ore, in twenty minutes, and the same cargo can be unloaded in three hours and twenty minutes by huge machines called clam-shell unloaders. The blacksmith once made nails by hand, now we poke the end of a long roll of wire

into a machine, and it rapidly pulls in the wire and drops out nails by the kegful. Man first printed with a little hand press, but now we feed the roll of paper to a machine as long as a room, which piles off thousands of newspapers or pamphlets an hour. As early as 1800, twenty-five people with the aid of the recently invented weaving machinery could do as much



THE HOE DOUBLE OCTUPLE AND COLOR COMBINATION PRESS

The largest newspaper printing press in the world, capacity per hour, 300,000 papers of 8 pages, other products at proportionate speed. See page 78 for picture of primitive press.

weaving as had been done by 1634 people fifteen years before, and the one city of Fall River, Massachusetts, now turns out two miles of cloth for every minute of the working day. It is said that it would require the labor of more than 1,000,000,000 persons — as many as there are men, women, and children in the world — to do the spinning and weaving that is now done by 1,500,000 workers with the aid of machinery in the cotton industry. The productivity of machinery would stagger our

Power	Horse Power					
	1909	1904	1899	1889	1879	1869
L. Primary power, total	18,675,376	13,487,707	10,097,893	5,938,635	3,410,837	2,346,142
Owned	16,802,706	12,854,805	9,778,418	5,850,064	3,410,837	2,346,142
Steam engines	14,199,339	10,825,348	8,139,579	4,581,305	2,185,458	1,215,711
Gas and other internal-combustion engines	751,186	289,423	134,742	8,830	*	*
Water wheels	1,807,439	1,641,949	1,454,112	1,255,045	1,225,379	1,130,431
Water motors	15,449	5,931	*	*	*	*
Other	29,293	92,154	49,985	4,784	*	*
Rented	1,872,670	632,902	319,475	88,571	*	*
Electric	1,749,031	441,589	182,562	†	*	*
Other	123,639	191,313	136,913	88,571	*	*
II. Electric Motors	4,817,140	1,592,475	492,936	15,569	*	*
Run by current generated by establishment	3,068,109	1,150,886	310,374	†	*	*
Run by purchased current	1,749,031	441,589	182,562	†	*	*

* Not reported. † Not reported separately.

POWER USED IN MANUFACTURING

U. S. census, 1910.

imagination were it not for the fact that it has become one of our commonplaces.

The growth of machine industry. — In the light of the great productivity of modern machine (technological) industry, and in the light of our great store of scientific knowledge which serves as its background, it is not surprising that machine industry has come in at a very rapid rate. For that matter, it is still coming in. The last quarter of a century has been unparalleled in the number of inventions submitted for patents, — unparalleled also in the rate of development of machines already patented.

Since the modern machine is typically a power-driven machine, the table on the previous page showing the increase of power-driven machinery used in manufacturing in the United States gives us some idea of the continually increasing use of machinery. Note that the table does not tell the whole story; for example, it tells nothing of the power used in agriculture, mining, and transportation. It shows only a rate of growth in one field of activity; not the total amount of power used.

CENSUS YEAR	TOTAL	BUSINESS BUILDINGS AND FIXED IMPROVEMENTS	RAILROADS AND OTHER PUBLIC UTILITIES	MOVABLE MACHINERY, TOOLS AND IMPLEMENTS	MISCELLANEOUS	INDEX OF QUANTITY OF CAPITAL PER CAPITA
1850	2,757	1,113	639	399	606	85
1860	5,900	2,160	1,868	665	1,207	133
1870	8,978	2,975	3,109	1,206	1,688	105
1880	13,636	4,117	5,386	2,373	1,750	205
1890	19,298	5,700	8,366	2,665	2,567	270
1900	24,783	7,250	10,926	4,006	3,231	321
1910	47,961	13,301	23,319	5,995	5,346	412

THE ESTIMATED VALUE OF THE SUPPLY OF ACTIVE CAPITAL IN THE CONTINENTAL UNITED STATES, IN MILLIONS OF DOLLARS

While machines are by no means the only form of capital goods, they are a very important form, so important, indeed, that a table showing the rate of increase of capital goods in the

United States gives more than a fair hint of the rate of increase of machinery. One of our statisticians¹ has compiled a table (shown on previous page) of the growth of active capital in the United States since 1850. It shows not only a great increase of active capital; it shows an increase much greater even than our increase in population. To be specific, our active capital has increased five times as fast as our population. Man becomes increasingly dependent upon the machine.

The pervasive machine.—A statement of the importance of machine (technological) industry to our life to-day which confined itself to mere figures giving the number of patented inventions, or the millions of horse power used, or the millions of dollars invested in active capital would come far from telling the whole truth. It would not give us an adequate sense of the pervasiveness of the machine. This pervasiveness becomes evident, however, when we trace through the processes of production some of our ordinary articles of consumption and see that in many cases they reach us practically without having been touched by the human hand. Our clothes, our furniture, the houses in which we live, the food which we eat are all partly, if not wholly, the result of machine work. The farmer of the great grain-growing states breaks the natural sod with a plow often drawn by steam power or a gasoline motor. He breaks the coarser clods into finer and more receptive soil with the "pulverizer" and the "harrow." He puts in the seed with a "force drill" or "planter." When the grain is matured it is cut with a "reaper" or "header," horse or power drawn, and the grain is separated from the straw by a thrashing machine which cleans hundreds of bushels a day. A motor truck may convey this grain to the "elevator" in a local town where power machinery loads it into cars. The railroad, a most important type of machinery, conveys it to the flour mill, where a whole series of machines grind it into flour. The railroad then moves it to some city where bakeries, mechanized to the highest degree, transform

¹ W. I. King, *The Wealth and Income of the People of the United States*, pp. 43-44.

it into bread. Motor-driven vehicles convey the bread to the retailer and to our homes.

Another example of the pervasiveness of machinery in production may be found in following the history of some such simple article as a nail. In northern Minnesota, in the Mesaba ore range, the explosive power of dynamite is used to loosen the ore. A steam shovel running on railroad tracks is used to scoop up the material, as a baker scoops sugar, and to drop it into freight cars. At Duluth and other ports on Lake Superior these cars, which have been moved in long trains by locomotives, are emptied through chutes into reservoirs from which the ore is later poured, again through chutes, into the holds of steamers. The steamers convey the ore to some unloading port where it is unloaded by machinery and again transferred to freight cars. These cars are run upon high trestles in the yards of the steel mill and from them the ore is dropped into chutes from which it can be fed into great furnaces which melt the iron from the slag. After a period of intense heat the iron has run to the bottom of the furnace, which is then "tapped," allowing the molten metal to flow into great ladles so mounted on cars that they can be conveyed to other furnaces in which the iron is so manipulated and mixed with other materials as to be converted into steel. After this change has been effected, and the steel is hardened enough to hold its form, it is placed upon rollers which are driven by such powerful machinery that they crush and shape the metal as though it were putty. Many forms may be made of it, such as steel plates, railroad rails, rods and bars. Some will be rolled and drawn into small rods from which other machines, working with the greatest rapidity, chop pieces two or three inches long, flattening one end and pointing the other and thus giving us the familiar nail. If we followed through the history of almost any article known to us we would find that machinery played as great a part in its production.

The influence of the machine extends even beyond the field of producing commodities. Its occupation of one of the fields of our life with its mechanical, standardized ways of doing

things has reacted upon other fields and introduced there a corresponding standardization. Under simple conditions, such as prevailed in America at the time of the pioneers, men began work in the morning when they "felt like it." If they desired they took a long "nooning." They stopped work in the evening when they were tired. If they desired to make a journey they planned the hour of departure to suit themselves and took the trip in such stages as they wished. If they wanted entertainment, the neighborhood planned it and met at some convenient time for a "sociable," a "quilting," or a "husking bee." Workmen in those days used the tools which they themselves selected. They picked them out because they would fit their hands or had the right "balance." They selected often the materials with which they worked and made goods to order for the consumer.

The machine has brought a great change. Our lives are now regulated by clocks which are uniform in time throughout the whole community. Our hours of going to work are determined for us and are announced by a factory whistle or a school bell. We begin and we stop according to a plan devised by others and which operates with a regularity over which we have no control. The tools the modern workmen use are not such as suit the eccentricity of individuals. Tools have been standardized and workmen are given implements of uniform shape and gauge. Materials are also standardized in uniform grades which have been scientifically calculated as best for machine handling. The rate at which these materials are worked by the men and machines is in many factories regulated by mathematical calculations rather than the wishes of the workers. When we purchase goods we almost never have them made as we wish. We buy the standard sizes, shapes, weights, and grades which we find on the market. We buy our shoes by size, our clothes by number, our food by the can or loaf or box. We select such furniture as has been designed at the factory, such automobiles as others have planned, such toys as are offered in the stores. Consumers' goods have been standardized and mechanized.

Our coming and going is no longer a matter of will. We take trains which run on positive schedules. We catch street cars at the moment which it has been planned they shall pass our door. We secure our news at definite times when newspapers are published or when magazines reach us. These matters have been schedulized. Even our amusements are no longer a matter of our own planning or creation. We attend the theater at the hour designated by some one else. We find there the form of entertainment which has been planned by another. The concert, the circus, the ball game all have their schedules of time which we must meet. If we fail to fit our activities to the mathematical and mechanical schedules with which we are surrounded we cease to participate in the life of society. Much of this standardization of modern life is due to the influence of technology in industry, to the incoming of a machine régime.

Too much must not be claimed for modern technology.— While the foregoing is all true, we must keep a sense of proportion concerning the contribution of machine industry to our social living. We have by no means reached a stage where we may assume that our wants can be gratified with little effort on our part. The productive power of the new technology is indeed great, but we must remember (1) that it takes much expenditure of social energy to prepare the instruments of roundabout production; and (2) that after all there are great areas in the want-gratification process to which modern technology has not been largely applied. The economist Gardner puts the case admirably as follows: ¹

“We compare the quantity of cloth turned out in a modern cotton mill with the quantity which could be turned out by the same number of laborers using the spinning wheel and the hand loom, forgetting the labor which has gone into the construction of the mill and its equipment and the fact that a large part of the labor required for the production of cloth is employed on the plantation, where the

¹ H. B. Gardner, “The Nature of Our Economic Problem,” in the *American Economic Review* for March, 1920.

increase of productive power has been comparatively slight. We compare the cost of moving a ton of freight by railway and by wagon, but we forget that owing to the growth and expansion of population and to its congestion in limited areas, devoted to manufactures and trade, goods must be carried much longer distances than a century ago. We forget that the increase in productive power has not been uniform throughout the whole field of industry, that it has been greatest in manufactures, mining, and transportation, and least in agriculture and the handling of goods in trade, in which branches of industry is employed a large part of the labor required in the production of the necessaries of life. Furthermore, our industrial development, accompanied as it has been by the growth of city life, has imposed upon us the necessity of providing new forms of wealth and services not required by a less densely settled population, such as paved streets, sewage systems, costly plants for supplying water, police service, and protection from fire, and has immensely increased the difficulty of providing adequate housing.

“The instances of increased power of production are striking and appeal to the imagination. The offsets are not so obvious and are apt to be overlooked.”

Machine industry has given rise to serious problems. — While detailed discussion must be postponed to later chapters, we must not leave this account of the position of machine (technological) industry in modern society without calling attention to the fact that it has brought us weighty problems to solve; that society needs to safeguard itself against the disadvantages of technological industry while continuing to reap its advantages. We have already caught hints here and there that the new technology places the worker at some disadvantage. Then, too, it makes powerfully for the growth of impersonal relations. It increases the risks which we have seen to be inherent in a specialized society. It has had a part in the development of our modern trusts, and in our great inequality of possessions. It has been no small cause of concentration of population in cities and thus of the problems of city life. The problems of machine industry provide our agencies of social control rich and varied opportunities for service.

One eminent economist has stated the matter thus :

“It is fair to say that this whole enormous transformation, which runs through the plan of modern industry and through the relations of employers and employed, which enters into and perverts our political life, and even lowers the moral tone of society, was inherent in the original steam engine which Watt manufactured in England more than a century and a quarter ago. It was all brewing in that tea kettle which as a boy he sat and watched, noting the force of the steam as it raised the lid and let it fall. He saw that the force might be put to great account in driving such primitive machinery as he knew of ; but he was far from foreseeing the transforming effects of the innumerable machines which his engines were destined to make available. No one for a hundred years thereafter realized their full economic and political consequences. From that economic application of physical force influences have followed which have put an end to small industry and to the old type of democracy. Can we save our democracy under a new form? Can we control the genie that has come out of the box we have opened? That depends on the question whether, as a people, we can regulate and guide the gigantic forces that have come into activity.”¹

PROBLEMS

1. The club of the cave man, the bow and arrow of the Indian, the pitfall of the primitive hunter all harnessed natural forces. What natural forces did each utilize? Were the club, the bow and arrow, and the pitfall used as means of producing goods? If so, why say that machine production is new?

2. Assume that this task is presented to you: you are to stand on the bank of a river, armed with a rifle, to shoot a large fish which you can see lying at the bottom. Consult your teacher of physics on the difference involved between (a) working this problem out by trial and error experimentation, and (b) working it out with an understanding of certain laws of physics. How could this problem be made to illustrate “rule of thumb” *versus* “rule of law”?

3. Just why did technical devices emerge so slowly when men could not make use of scientific knowledge?

¹ J. B. Clark, *The Problem of Monopoly*, pp. 21-22.

4. "The new technology." Write out a paragraph telling what this expression means.

5. It is said that using machine industry as a method of production enables us to use natural forces. Were natural forces used in industry prior to 1750?

6. "Science has been made an aid to industry." Give six illustrations other than those used in the text of ways in which science aids industry.

7. "The machine is a tool plus." Plus what?

8. Name four tools other than those named in the text and four machines which use these tools or their equivalents. Some one has said that a machine is just a mechanical person holding a tool with a rigid grasp. Does this description satisfy you?

9. Do we always use tools or machinery in making things? Can you name a single case of a commodity which is produced "with our bare hands"?

10. Why is industry "with our bare hands" not as productive as tool industry? Why is tool industry not as productive as machine industry?

11. Machine industry did not become of its greatest use until machines were used to make machines. Why?

12. Why do nations strive to get possession of iron mines? Why in the recent war were the various nations so eager to occupy iron and coal districts?

13. To produce a coat by machine methods requires that a factory shall be built for weaving the cloth, a factory for spinning thread, a factory for making needles, a factory for making buttons, etc. It is expensive to build these factories. How can it be possible that machinery has resulted in lower prices for goods?

14. Give two illustrations other than the one given in the text of machines which concentrate a great amount of force upon a small point; of machines which work with greater rapidity than can human beings; of machines which work with greater accuracy.

15. Roundabout methods lead to greater results than direct methods. Just why?

16. Roundabout production is not merely usually a better way. In the case of certain goods it is the only way. Illustrate.

17. "Man aided by machines can transfer wool from a sheep's back to his own in a few hours." "The machine has lengthened the time of the productive process." Which of these statements is correct? Are both correct?

18. Review the ways in which specialized industry increased the risks in business. Does machine industry increase risks also? (See Study XXI.)

19. Review the ways in which specialization led to impersonality. Does machine industry also lead to impersonality?

20. In the early days of machine industry factories were built near waterfalls, the falls being utilized to turn a water wheel, which was attached directly to the machinery of the mill. How have we improved on this situation?

21. Give illustrations, showing that farming, transportation, and manufacture make more extensive use of machinery than they did in medieval times.

22. A business man once said, "I prefer to employ machines rather than persons." Make a list of the reasons why he might feel this way.

23. Can machine production be used in making artistic goods? Goods in which the personal tastes of the consumer are very important? Why or why not?

24. "Machines may be used instead of physical labor, but they can never take the place of mental labor except for the most routine kinds." Is this true?

25. Do you think that you would fare well in competition with a machine? Does this question throw any light on the sort of work you want to secure for your life occupation?

26. Could machine production wisely be used unless the market were very large? Has the machine enlarged the market or has the widened market caused more machinery to be used? Could both be true?

27. Show how life has been changed in your community by the telephone. By the automobile. By the refrigerator car. By the locomotive. Consult your parents or grandparents.

28. What is meant by saying that machine industry is largely responsible for the development of modern cities? Can you name any problems which have resulted from this growth of cities?

29. Can you name any mechanical devices which help us enjoy our leisure time?

30. "Machinery has increased the possibility of interchange of goods and ideas." How? Why is it important to have this interchange?

31. What inventions help unite people in a nation? What inventions help bind country people to city people?

32. "Machinery has made life more varied." "Machinery has standardized life and reduced it to routine." With which quotation do you agree?

33. When shoe machinery was introduced, how did it affect the man who made shoes at home by hand? Does it seem to you it offered to people fewer or more opportunities to earn money? Were there new jobs making the new machinery? How did it affect the price of shoes? State other advantages and disadvantages that came in with shoe machines.

34. It is said that "Machine methods have profoundly influenced our mental outlook and our activities. Modern life has become mechanized." Follow through your activities for a day, setting down those which you perform according to a schedule planned by others. Set down those in which you are entirely free to do as you please. How does your life compare in this respect with that of Daniel Boone?

35. Make an outline of the main points of this lesson.

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STUDY XIV

MACHINE INDUSTRY AND INDIRECT COSTS

PURPOSES OF THIS STUDY :

1. To understand the meaning of direct and indirect costs.
2. To study some of the far-reaching effects of the presence of indirect costs in technological industry.

Direct and indirect costs.— Technological industry has raised many problems. These problems arise out of no one single factor and it would be misleading to treat them as if they did. There is, however, one factor of very great importance which we can take up for study at this time. It is the presence of *indirect costs* in technological industry. We can get an understanding of indirect costs and their effect by beginning with a simple illustration.

Recently a certain hotel manager made an investigation to determine what price he should properly charge for his rooms. He realized that there should be some relation between his charges to guests and his own costs. He set out, therefore, to find out just what his costs were in providing accommodations. He thought this would be easy. He thought he would need only to find his total expenses by adding together such elements of cost as rent, light, heat, service of janitors, porters, and maids, and to divide this by the number of rooms in the hotel. In this way he believed he could determine just what he ought to charge a guest.

He had not gone far with his investigation, however, before he found that the matter was not so simple. He found that certain elements of cost remained the same throughout the year but that others varied according to the number of guests he had — according to the volume of business. For example, he paid

an annual rental for the hotel which he operated. This cost remained constant no matter how many guests he entertained. The same was true of the taxes he paid. As he read books which discussed accounting matters, he found that costs which remained constant notwithstanding changes in the volume of the business were called "constant" or "overhead" or "indirect" or, sometimes, "supplementary" costs. The writers applied these terms to the costs that did not vary with variations in the business; such costs could not be attributed to the presence of any given item or unit of the business, but were incurred for the sake of the business as a whole.

The hotel manager found that there were other items of cost which were not absolutely constant, but did not change as greatly as the volume of the business. For example, the amount of gas used in heating his ovens and in other cooking showed some falling off when he did not have many guests, but it was a relatively small falling off, for the ovens had to be maintained at a certain heat no matter whether much or little food was prepared in them; and much the same considerations applied to other kinds of cooking.

Somewhat the same situation existed with respect to his laundry costs, since the hotel maintained its own laundry and did not have the work done at piece rates. Then, too, the number and total wages of porters, bell boys, maids, doormen, waiters, and other employees remained somewhat constant, although, of course, he brought in some additional help in rush seasons. In general terms, he came to the conclusion that most of these costs would also have to be regarded, for the purposes of a general inquiry, as supplementary or indirect or overhead or constant costs.

There were some costs, however, that varied very closely with the volume of business. His butcher's bill was one of these. In general, it was ten times as large when his guests increased tenfold. What was true of the meat bill was true of most other items of food. As he read on the subject he found that accountants called such costs as these "prime" or "direct"

or "variable" costs, meaning of course that they are costs which vary somewhat directly with the amount of business done. Such costs, he saw, can be specifically assigned to a given unit of business. If that unit of business is not present, the costs are not present. As the number of units increases, these costs increase at about the same rate.

The elements of cost in a factory. — From this story of costs in the hotel business it is apparent that total costs in any business are made up of two items, the prime or direct or variable costs, and the supplementary or indirect or overhead or constant costs. It is, of course, not always easy to classify every expense of the business under one or the other of these heads. It may be necessary to split the expense up into its elements and then classify these.

One writer¹ on cost accounting states the matter somewhat as follows :

"The production cost is made up of direct costs plus the indirect costs. In addition to this production cost there is expense connected with selling and general administration which is, of course, one kind of overhead costs. The production cost plus the selling and general administrative cost gives the total cost of making the goods. The difference between this total cost and the selling price is the profit."

The same writer gives a list of items which occur most frequently in indirect costs connected with production. The items, of course, vary from factory to factory, but the following list is a helpful one :

Indirect material	Inspection	Repairs
Oil	Experimental	Power or power plant
Supplies	Rent	Light
Freight and express in- ward, when not charged to direct material cost	Taxes	Heat
	Insurance	Small tools
Indirect labor	Interest	Wastes of material, shrinkage of weight,
Supervision	Depreciation	defective work
	Maintenance	

¹ J. L. Nicholson, *Cost Accounting*.

		PRODUCTION INDIRECT OR OVERHEAD			SELLING EXPENSE OVERHEAD	PROFIT
DIRECT MATERIALS	DIRECT LABOR	Depart- ment Expense	Factory Expense	General Expense		
\$200	\$200	\$100	\$75	\$50	\$50	\$100

←----- Selling price \$775 -----→
 ←----- Total cost \$675 -----→
 ←----- Total production cost \$625 -----→
 Prime or direct cost \$400 →

A COST DIAGRAM

The above diagram illustrates by purely arbitrary figures the elements which make up cost. The illustration is applicable to a case where a large plant is divided into several factories and the factories into departments. It assumes that a system of cost accounting has been installed which makes it possible to tell just what were the indirect costs of specific pieces of work. Since we do not know the details of the cost accounting system which has been installed, we shall not be able to assign or apportion all of the elements of indirect cost mentioned in the preceding paragraph. We shall assign merely certain ones as examples. Let us follow the diagram through as if we were following the manufacture and sale of a machine whose selling price is \$775. To begin with, at the lower left of the diagram, the wood, iron, and other materials used "directly" in the making of a specific machine cost \$200; the wages of men working on this machine amount to another \$200; this machine's fair share of the overhead cost of the department in which it is made, including among other things its share of the salary paid the department superintendent, and of the depreciation charge on equipment in that department, is \$100; its fair share of the indirect cost of the entire factory, such as its share of the salary of the factory superintendent, is \$75; its fair share of the indirect cost connected with the entire plant, including among other things its share of the salary of the general manager, and of the expenses of the central administrative office, is \$50;

its fair contribution to the maintenance of the sales organization is \$50; thus making the total cost \$675. Of this, \$400 represents direct costs (costs specifically incurred on that one item of business); and \$275 represents indirect costs (costs incurred for the business as a whole, and assignable to specific units only by a process of "allocation"). Since they are able to sell the machines for \$775, there is a profit of \$100.

Indirect costs change little when changes occur in the volume of business. — It is not hard to see that there is a very large element of indirect costs in every business where machines are largely used. Now let us note that these indirect costs do not change greatly — they remain comparatively constant — (you will remember they are sometimes called *constant costs*) when changes occur in the volume of business. A good illustration of this may be found in the railroad industry. Omitting from consideration dividend payments, railroad expenditures may be classified as follows:

(1) Fixed charges	25%
(2) Total operating expenses	75%
A. General operating expenses	3%
B. Maintenance of way and structures	16%
C. Maintenance of equipment	14%
D. Conducting transportation	42%
(3) Total	100%

POSSIBLE DISTRIBUTION OF RAILROAD EXPENDITURES (EXCLUDING
DIVIDENDS)

The item *fixed charges* includes such things as taxes, and interest on money which has been borrowed. Clearly these amounts do not change over short periods of time, no matter whether the traffic be large or small. *General operating expenses* include such matters as salary of the president and cost of the central administrative office. These expenses also are practically independent of the volume of the traffic. The expenditures for *maintenance of way and structures* cover such items as renewing rails and ties; repairing and replacing roadbeds,

bridges, and culverts; repairing docks, wharves, station houses, signs, cattle guards, and fences. Many of these expenses are due not to wear and tear of traffic over the road, but to rusting, rotting, washing out, and other acts of nature. Accordingly, even in maintenance of way and structures quite a few costs are independent of the volume of the traffic. This is true also of *maintenance of equipment*, which involves repairing and renewing the locomotives and cars. Even equipment wears out almost as quickly with light loads as it does with heavy loads and we must not forget that much equipment has to be thrown away because it gets out of date. This is what people mean when they say that in modern machine industry there is much depreciation due to obsolescence. New machines come in so rapidly these days that quite frequently old ones are thrown away before they have had much use. The money paid out for *conducting transportation* takes care of the cost of fuel and water, train supplies, wages of switchmen, conductors, engineers, signal men, etc. Even these items are more independent of the volume of the traffic than one would at first suppose. Almost as many switchmen, signal men, engineers, and conductors are used with short trains as with long ones. However, the cost of conducting transportation is more closely related to the volume of the traffic than is true of any of the other items.

The accompanying table will serve as a sort of definite summary of this discussion. The figures of column III, showing the percentage of total expenses chargeable to each class of expenditures, are divided in such a way as to indicate how much in each instance must be paid out regardless of the volume of the traffic (column I), and how much bears a relation to the volume of traffic (column II). You will notice that in the railroad business nearly 60 per cent of the total cost, exclusive of dividend payments, has little relation to the volume of business. This is a higher percentage than is true of most other industries, but after all, the railroad gives us merely an extreme illustration of what exists in all technological industry.

CLASSES OF EXPENDITURE ¹	I	II	III
	% of costs independent of volume of traffic (constant)	% of costs dependent on volume of traffic (variable)	Total
Fixed charges	25	0	25
General operating expenses . .	3	0	3
Maintenance of way and structures	10	6	16
Maintenance of equipment . .	7	7	14
Conducting transportation . .	14	28	42
Total operating expenses .	34	41	75
Total	59	41	100

ANALYSIS OF RELATIONSHIP BETWEEN CONSTANT AND VARIABLE COSTS IN RAILROADING

The presence of indirect costs stimulates efforts to enlarge the business. — Indirect cost, then, goes on much the same whether a business shrinks or grows. If it shrinks, this element of cost will not shrink anything like as much. If it grows, this element will not grow anything like as much. This fact makes a modern business manager eager to increase the volume of his business so that his indirect (constant) costs may be spread over as many units of business as possible. This is especially true when his plant is not running to its full capacity.

The experience of a certain manufacturer of hats shows why this is true. This man found that the total of his indirect costs for a year amounted to \$10,000. He found, further, that the direct costs entering into each hat, including both direct labor and direct material, were 50 cents. If he should manufacture and sell only 1000 hats in the course of a year, his direct costs on the 1000 would be \$500; his indirect costs \$10,000 — a total of \$10,500. Clearly enough, a price of \$10.50 for each hat would just enable him to get back his cost. If, however, he

¹ Cf. Noyes, *American Railroad Rates*, p. 17.

could make and market in a year's time 10,000 hats, his total costs would be \$15,000 and a price of only \$1.50 a hat would enable him to meet his costs. He concluded that he ought to produce many hats and offer them for sale at a fairly low figure. At what figure? The exact answer to this question would involve many business considerations which cannot be taken up in this lesson. The lower the price the more hats people would buy; but it should be clear that he could not afford to put the price below 50 cents, for the straw cost and the labor cost specifically incurred for each hat were 50 cents, and such a price would leave him nothing which he could apply toward meeting his overhead costs. The price should be something over 50 cents, and it should be a figure that would bring into existence a large volume of business, so that the constant costs would be spread over many units.

This tendency to increase the size of the business when indirect costs are largely present, explains many of the happenings in modern business. For one thing, it shows why American manufacturers sometimes sell goods abroad at a lower price than they sell them at home. Mr. Edison once said of this practice, "I was the first manufacturer in the United States to adopt the idea of dumping surplus goods upon the foreign market. Thirty years ago my balance sheet showed me that I was not making much money. My manufacturing plant was not running to its full capacity, because I couldn't find a market for my products. Then I suggested that we undertake to run our plant on a full capacity and sell the surplus products in foreign markets at a price somewhat higher than the direct cost of making them, but somewhat lower than the total cost (direct plus indirect) if that should be necessary. Every one of my associates opposed me. I had my experts figure out how much it would add to the cost of operating the plant if we increased our production 25 per cent. On this basis I sent a man to Europe who sold lamps there at a price less than the cost of production in Europe. American consumers were not injured in the slightest, for they paid the same price they had always

paid, and I was enabled to employ 25 per cent more men and get rid of my surplus product by dumping it upon the foreign market."

The principle followed by Mr. Edison in this matter is precisely the same as that of an electric light and power company which sells electricity for lighting purposes at one price and electricity for power at a much lower price. If it sold electricity for lighting alone, the plant would be practically unused the greater part of each day. By cutting the price on electricity for power, people are persuaded to use electric power instead of steam power. The price set for this electric power should be somewhat higher than direct costs. The enlarged business enables the company to spread its indirect costs over a great number of units of business with a resulting increase in profits.

This shows also why many businesses find it profitable to set up departments to utilize the by-products of the original business. The new department can often be added without a proportional increase of indirect costs, and the increased volume of business under such circumstances is likely to spell increased profits. So, too, a railroad may wisely build a branch line, that considered by itself, does not seem profitable. If, however, it adds to the traffic hauled over the main line, so that the indirect costs of the main line are spread over more business, it may be worth doing. So, too, if empty cars move prevailingly in one direction on a certain railroad, it will pay to make very low rates to induce traffic to move in that direction, and it pays to make low rates on heavy, bulky commodities for just the same reason that it pays to make low rates on electricity for power. It is not necessary to heap up examples, however. Indirect costs are so prevalent in modern industry that examples are numerous in almost every business.

It is evident enough that the presence of indirect costs is one of the reasons why many businesses have a tendency to grow larger and larger. This is such a general tendency that we say we are living in a period of large-scale production. The discussion of the advantages and disadvantages of large-scale

production and of the size which gives maximum efficiency in a business is taken up in a later lesson, but one of the causes of large-scale production we see now. (See Study XV.)

Indirect costs make it necessary to watch business operations closely. — There is an interesting corollary of the fact that the presence of indirect costs stimulates efforts to enlarge the business. Their presence makes for an increased sensitiveness. A very slight change in the volume of business or a very slight shift in prices may make all the difference between huge profits and bankruptcy. An arbitrary arithmetical illustration shows how this can be. Suppose that we represent the gross income of a business by 100, its direct costs by 40, and its indirect costs by 55. The profits are, of course, 5. If now the indirect costs do not change at all (as might well happen), an increase of 10 per cent in the volume of the business would increase only the direct costs by 10 per cent, and as the table shows, profits would increase from 5 to 11, which is an increase of 120 per cent. On the other hand, if business should fall off 10 per cent, the concern would be headed toward bankruptcy. It is no wonder that business men are exceedingly careful to retain business they have once secured; are willing to do business on very "narrow margins" if they can get a large volume of it; are keen to secure the services of a manager who will add "just a little" to their trade.

	CONDITIONS ASSUMED	WHEN BUSINESS INCREASES 10 %	WHEN BUSINESS DECREASES 10 %
Gross income	100	110	90
Direct costs	40	44	36
Indirect costs	55	55	55
Profits	5	11	-1

POSSIBLE RESULTS OF SLIGHT SHIFTS IN VOLUME OF BUSINESS

The worst of it is that one can seldom predict just what will happen. Let us take up the hat case again. Suppose that in

a given year the hat manufacturer was making and selling at \$11 each, 1000 hats. This would give him a profit of \$500 for the year. Suppose that the manufacturer told this foreman that he intended to cut the price of hats to \$5. His foreman might well be pardoned for believing that this would lead to bankruptcy. Yet if the lower price should result in a sale of 3000 hats, his profit for the year's work would be \$3500. Of course, it could not be known in advance what result in sales would be brought about by the reduced price.

People have in mind this difficulty in ascertaining facts when they say that our industry to-day is speculative. It is not easy to know what facts will develop. Chances must be taken. Such a situation is, of course, not pleasing to business managers, and they try in many ways to obtain knowledge as definite as possible. The way most closely connected with indirect costs is by the interesting device known as "cost accounting." This is a recent device. Its essential feature is that by careful analysis one assigns to each unit of the product the direct costs involved, and on some appropriate basis apportions or allocates the indirect costs. The business man finds that he can use information of this sort not merely to tell him what his costs have been, but also to point out how he can operate his business more economically. He can learn fairly definitely what parts of his business are run at a loss, what parts are profitable but cost too much, and what parts would be more profitable if they could be expanded. The importance of this "instrument of control in the hands of the business executive" is particularly great because indirect costs tend to bring about business operations of such a magnitude that personal supervision and control will not suffice.

Since a slight change in the volume of business may spell bankruptcy, we find our managers to-day very anxious to secure and retain a firm hold on their customers. Increasingly they are unwilling to rely upon the "orthodox" system of distribution; that is to dispose of their goods through the wholesaler and the retailer to the consumer. Increasingly they try to

make direct connections with the consumer. Sometimes they do this by establishing chains of branch stores; sometimes by setting up a mail order business; sometimes by conducting such a broad campaign of advertising that it is called national advertising, so that the consumer will be led always to ask for their products. This helps explain why so many extensive experiments are being carried on to-day in marketing goods and why advertising has only within the past generation come to play an important part in our economic life, although we have had advertising even in newspapers for several centuries. In the days of simple industry, when direct costs constituted nearly the total cost, and business was not so sensitive, and there was not such a tremendous pressure to enlarge the business unit, advertising had no such field as it has to-day.

Cutthroat competition. — Indirect costs also give us a partial explanation of that curious phenomenon called *cutthroat competition*. Cutthroat competition means simply that business managers in their struggle for added business or to retain their existing volume of business, cut prices lower and lower until they are sometimes selling their goods even below prime cost. Such a policy must, of course, result in business failure if long continued, and in many cases it would not have been adopted if the business managers concerned could have known all the facts in the case. Unless, however, they had remarkably good cost accounting systems they would not know what their prime cost was. In such a case cutthroat competition is primarily the result of ignorance.

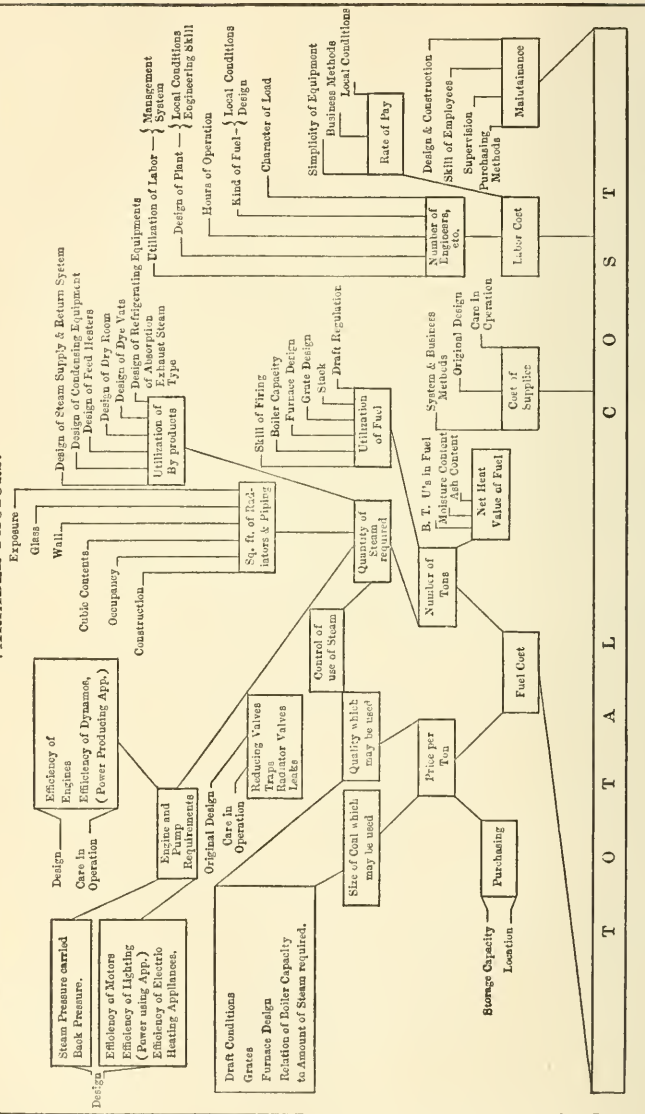
There are cases, however, when a manager would feel justified in cutting his selling price even below direct cost. He might do so as a temporary measure, hoping that by a short war he might drive his competitors out of the field; or he might do it in one line of business in order to develop some other very profitable line, as the Pennsylvania Railroad is said to have done with its coal traffic in order to stimulate manufacturing along its line and thus secure the profitable traffic in manufactured goods.

Cutthroat competition is at its worst when it occurs in a business which uses highly specialized capital which cannot be readily transferred to some other occupation. The railroad industry is a good illustration. Tracks, locomotives, cars, etc., require tremendous outlay of money, and when these instruments have been called into being they can be used only for the one purpose. Capital has been committed to the enterprise in a way that is irrevocable. If a cut-rate fight starts in such an industry it may go to almost any lengths. Its managers are not likely to know their direct costs and so they take chances by cutting prices lower and lower. Even if they do know them, they may decide to fight it out; and they fight it out in a field which no one feels he can abandon because of the great loss involved in a transfer. In the 1870's and 80's when we were developing our great Middle West, the railroads of the country competed very strenuously. They offered discriminating rates and discriminating services. They even paid back money to certain shippers if they could not induce them to send freight over their lines in any other way. This was called "rebating." Such practices led to evils.

The railroad is one of our basic industries. It is used by almost every one. Unfair, secret practices in such an industry were a great hardship to the shippers who were discriminated against. The advantages that the favored shippers reaped helped some of them to get monopoly control in their industries. From this it may be seen that the presence of indirect costs in industry had greatly increased the problems of social control, for the control of public service companies, such as the railroads, and the control of monopolies or trusts are among the most serious problems of the day. (See Study XVII.)

Indirect costs and social control. — We can begin to see why society faces no small task in the social control of modern large-scale business. Especially is the problem serious with reference to the public utilities and trusts. Consider the vast stores of detailed information which would have to be made available before one could know their costs intimately enough to separate

DIAGRAM SHOWING DEPENDENCE OF TOTAL COST OF SUPPLYING STEAM ON A GREAT NUMBER OF VARIABLE FACTORS.



Courtesy of *Industrial Management Magazine*

VARIABLES IN COST ADMINISTRATION

Do not try to understand the individual factors involved in this diagram. Merely notice the large number of variable factors involved in the total cost of steam. Would it be easy to establish cost accounting and to regulate prices?

them accurately into direct and indirect costs. Cost accounts that are helpful are not so easy to organize and use as they have appeared in the simple illustrations used in this lesson. Consider, too, the judgment a regulating officer would have to exercise in fixing prices, for example, when the smallest of margins of profit might make all the difference between exorbitant profits and bankruptcy. Consider, also, the difficulty in determining what constitutes fair profits. They ought to be high enough to tempt a satisfactory number of people and a sufficient amount of capital to operate in a given business. But who could determine in advance what would be "satisfactory," and even if that were known, who could determine what rate of profits would bring about this "satisfactory" condition? "Can we control the genie that has come out of the vessel we have opened?"

Simple industry versus complex industry. — We have reached a stage in our study where it is worth one's while once more to make a comparison of the industry of medieval England with that of to-day.

The outstanding features of industry of the fourteenth and fifteenth centuries were these: it was small-scale industry; both worker and master, even those of limited intelligence, could survey and understand the processes involved. Markets were of small scale with respect both to space area and to time area, and simple commercial organization would suffice. It was tool industry, so that the technique involved was simple and understandable. The social structure seems, as we look back, relatively simple. Industrial control was primarily local, and society lacked its modern interdependence. A man of but ordinary intelligence and training could appreciate with some accuracy his relationship to the rest of organized society. It was industry where the total costs were almost entirely direct costs, so that the master could know, and would know without the necessity of a complex accounting system, his costs of operation. It was industry where the initial capital outlay involved was exceedingly small.

Very different things are true of our modern industry. It is large-scale industry so that practically no one in a great organization can know the details of the processes involved. The market area, both time and space, is tremendous and the commercial organization of society correspondingly intricate, complex, and difficult to understand. It is machine industry, as opposed to tool industry, with all that this involves in intricacy of processes, in difficulty of the determination of costs, and in the complexities of social control. It is a complex, interdependent society, so that even the most intelligent manager has difficulty in fully appreciating his relationship to the rest of society. It is an industry where a large part of the total cost is made up of supplementary cost, so that pressure is brought upon the manager to retain his present volume of business and to develop new business under conditions where competition can readily become tremendously severe; and finally, it is industry where large initial capital outlay is required. Truly the world has changed.

PROBLEMS

1. Draw up a definition of direct cost and give six illustrations of it.
2. Draw up a definition of indirect cost and give six illustrations of it.
3. What kind of cost, direct or indirect, forms the larger part of total costs in the following businesses; making sun-dried bricks by hand, cobbling shoes, making shoes in a factory, unloading coal by a steam shovel?
4. Would it be good business policy for a manager of a hotel secretly to offer lower rates to some possible guests if otherwise they would not stop with him? Might it make a difference if he were considering a "short run policy" or a "long time policy"?
5. If a railroad between New York and Chicago is already in existence and trains containing some empty cars are running, what extra cost would the railroad incur if it hauled a five-pound box from Chicago to New York?
6. Would it be good business policy for the road to haul such a box at a rate only a little in excess of this added cost, if it could get no

more for the service? Would it be good policy to haul all traffic at such rates?

7. A salesman soliciting advertising for his magazine recently said to a shoe manufacturer, "You are at present selling 100,000 pairs of shoes a year. If you do the advertising I suggest you can sell 200,000 pairs and thus double your profits." Wherein would you criticize the argument of this salesman? Of what was his knowledge weak?

8. The efficiency of modern railroad transportation is shown by the example of a certain American railroad which is said to haul freight at an average cost of one mill per ton-mile. Should you regard it as worth your while to carry a ton of goods a mile for a tenth of a cent? How is the railroad able to do it?

9. Give three examples of depreciation through obsolescence; three of depreciation due to wear and tear.

10. Show why the profit of the hat manufacturer mentioned in the text would be \$3500 on a sale of 3000 hats at \$5 each. If he manufactured only one hat, at what price would it be necessary to sell it to make the same profit?

11. Suppose that the manufacturer made 7000 hats. At what price would he have to sell each hat to get back his total cost? At what price if he sold 25,000 hats?

12. A few years ago an automobile manufacturer offered to return \$50 to every purchaser of one of his cars during the year, if a total of 300,000 cars were sold before August 1. Some persons said of him, "How generous." Others said, "He is childish." How do you account for his action?

13. The larger the overhead or indirect cost of a business the more important it becomes to increase the volume of sales. Explain why.

14. An American manufacturer of a certain commodity could sell it in England if he quoted a price of \$18 a ton *in England*. Market conditions in the United States were such as to enable him to secure \$24. American buyers complained when he sold his commodity abroad cheaper than at home. He replied that his action benefited the American consumer. How could he argue this?

15. An American manufacturer recently said, "Before I installed expensive machinery I could make a good profit selling at home. Since

I have installed this machinery I must seek foreign markets." Was there any sense in his statement?

16. "In industries where the indirect cost is a large proportion of the total cost it pays to take business at a price which is below total cost, provided that the price is above direct cost." Explain why.

17. "As indirect costs increase business ventures become more speculative, more risky." Is this statement true? Can you name any other factors which have tended to make business ventures more speculative?

18. "The increased use of machinery has greatly increased indirect costs." Explain.

19. "The use of machinery in production has stimulated the growth of large business units." Explain.

20. "In the days when direct costs were the major part of total costs, the incentive to extend a given business was not great." Explain.

21. "Indirect costs have caused countless experiments to be made in methods of marketing goods." Why?

22. "A good accountant is more valuable to a business than a good lawyer; accounting is more useful to society than the law." What do you think of this statement?

23. Name as many as you can of the difficulties of business management that arise from indirect costs. Name as many as you can of the institutions, mechanisms, or devices, which business men use to control and guide the difficult situations arising from indirect costs.

24. Why did the competition of railroads so often force them into financial difficulties? How could it be possible that a road would occasionally be in difficulty a long time before finding it out?

25. "Cutthroat competition among railroads shows that the accounting systems of the road were inadequate." Does this seem probable to you? Do you see any reason why the railroads in the 80's might have had inadequate accounting systems?

26. "Just railroad rates can be based only on a knowledge of costs." Is this statement true?

27. Some years ago the federal government passed a law which forced all interstate railroads to use the same system of accounts. What reasons can you give for such a law?

28. Are the economic problems of the railroad business essentially different from the problems of any modern industry in which indirect costs make up a large part of total cost?

29. In the days of handicraft industry men did not push vigorously for new markets; to-day, when machine industry is used, there is tremendous competition for new fields in which to sell goods. How do you account for this difference?

30. Draw up a list of the consequences (a) to the business manager, (b) to society, of the coming in of indirect costs.

31. When we speak of industry in 1750 as having been "simple" and of industry to-day as being "complex," what do we mean? What are the component elements of this simplicity or complexity?

32. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

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Taussig, *Principles of Economics*, Second Revised Edition: chs. 12-16.

STUDY XV

THE SIZE OF MAXIMUM EFFICIENCY OF THE BUSINESS UNIT

PURPOSES OF THIS STUDY:

1. To understand the reasons for the increasing size of the business unit.
2. To get some understanding of the fields appropriate to large and to small business units.

Since the coming in of the Industrial Revolution there has been a phenomenal growth in the size of business units. This increase has been due to many causes and has taken various forms. As we read of the growth of large business units in this chapter we should realize that we are not necessarily studying the growth of monopolized business, generally called "the trusts." All the forms of large-scale production which we shall consider may be in existence without monopoly being present. It is true that sometimes the enlarged business has become a trust, but the increasing size of business units has in the main resulted from the manager's striving to bring his business to "a size of maximum efficiency." But what does this mean? As we have seen repeatedly, modern business is conducted on the "gain" basis; managers do those things which "pay." Accordingly, a manager who is trying to arrive at a size of maximum efficiency will continually be considering such questions as these:

1. What effect will increased size have upon my costs of manufacture? Our study of indirect costs enables us to know some of the things which will pass through the manager's mind in this connection.

2. What effect will increased size have upon my marketing problems, including both the purchase of materials and the selling of the finished product and transportation costs in both connections?

3. What effect will increased size have upon the ease or difficulty of bearing the risks of my industry?

4. Will the efficiency of administration, in relationship to its costs, be increased or diminished by a growth in size?

The chief causes, and forms of growth as well, should become clear if we look at the development of one or two great industries with which every one is familiar.

Meat packing furnishes a good illustration. — Sixty years ago the fresh meats that were served on people's tables were for the most part produced in the local community. The local butcher purchased the animal from the farmer, dressed it himself, and sold it over the counter of his little shop, or peddled it from a wagon to the families in the neighborhood. Such a method of dressing and vending meat was not very different from that employed by butchers of medieval times. Clearly such a business was a small-scale business. Not a great amount of meat was produced by any individual.

But there were strong geographic reasons in America why the producing of beef, pork, and mutton near the place where they were used would not continue indefinitely. The great flat, fertile prairies of the central Mississippi Valley and the extensive plains farther west were naturally so well adapted to furnishing the food supply of live stock that no other district in the United States could long compete with them, if only adequate transportation facilities could be developed for carrying meat products to other districts.

To Chicago, lying in the center of this rich valley, there came in the sixties and seventies the men whose names have become most widely identified with meat production. Some of these men were merely local butchers, some were stock buyers who purchased live stock from the raisers and shipped it to the eastern states "on the hoof" to other dealers who turned it into dressed

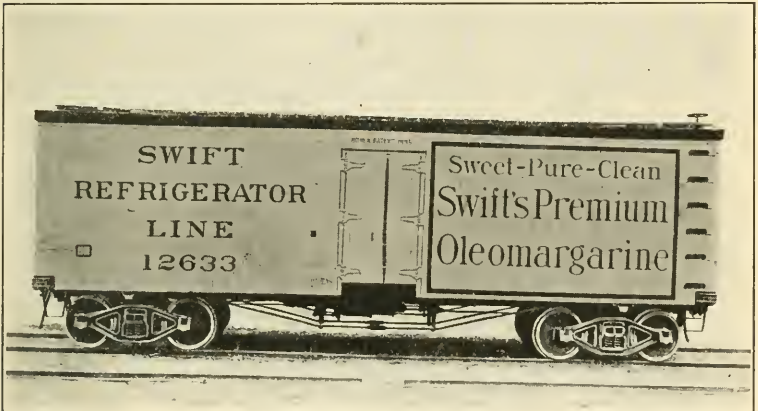
meat and sold it to consumers. Still others of these "meat men" were packers as well as dealers. The packers did some slaughtering — especially of hogs — and salted, smoked, or otherwise preserved the product before shipping. This work was the original packing industry. Compared with the great meat industries in Chicago to-day, these enterprises were small and simple. Let us see what caused the present large-scale production.

Striking results of refrigerator car.—Shipping stock "on the hoof" to eastern cities was a risky business conducted in a wasteful way. The stock which was loaded into stock cars in Chicago arrived in the east much shrunken in weight. Stock became sick, was injured, and many died on the long crowded journey through varying weather and temperature. At certain points on the route the stock was unloaded, fed, watered, and rested, and of course this was expensive. A little more than half of an animal can be used for meat, and, in those days, the balance, with the exception of the hide, was sheer waste. Thus to the other wastes of the system had to be added nearly a half of the freight cost. Under such circumstances it was not strange that the Chicago cattle dealers were anxious to find a method by which fresh, dressed meat could be shipped to their eastern buyers. Such a method was found in the construction of refrigerator cars. In these cars chilled meat could be sent in perfect condition to the most distant markets.

But building the first of these cars was taking a considerable risk, as they were at best an experiment. The railroads were unwilling to take this risk, and they believed, also, that many of their live stock cars would be rendered useless if the refrigerator car was satisfactory. As a result of these and other circumstances, the packers themselves were compelled to build refrigerator cars. Thus the business of the stock dealers was expanded into a new, but an allied industry, that of transportation. They were no longer merely stock dealers and butchers. They became owners of transportation facilities. This phase of the packing business has developed until now, at least twenty-

five thousand refrigerator cars are owned and used by the Chicago packing plants.

The adoption of the refrigerator car, which was almost forced upon the stock dealers by the wasteful methods of shipping live stock, in turn contributed to forcing them into slaughtering on a large scale. Upon the one hand, the development of an expanding, speculative eastern market through refrigerator cars meant that they had to develop a producing or slaughtering



Courtesy of Swift & Co.

A MODERN REFRIGERATOR CAR

The refrigeration is accomplished by filling certain spaces with ice. A refrigerator car for meat-carrying is an ice-box on wheels.

establishment with sufficient capacity to meet sudden or unusual demands, and this meant that the slaughtering establishment must have its own cold-storage facilities for use in "equalizing" supply and demand. These cold-storage rooms could be used to accumulate a supply in anticipation of demand or they could be used for preserving a supply whose demand had been unexpectedly lessened. The refrigerator car, the refrigerating rooms, and the larger slaughtering plants meant the emergence of indirect costs. As we have seen, indirect costs make powerfully for an increase in the size of the business unit.

Upon the other hand, the refrigerator car led to the establish-

ment of branch packing plants in Kansas City, Omaha, St. Joseph, and other western cities. If the refrigerator car was to be used at all in shipping, clearly the greatest economy would result from slaughtering the stock as near as possible to the farms where it was raised. These western packing branches, accordingly, followed the westward movement of the cattle-raising industry. In fine, these developments meant big plants and they meant many plants.

Difficulties in marketing. — When the Chicago packers began the slaughtering business on a large scale it became necessary to find methods of selling their product. Many of their former customers for live stock would not buy dressed meats, since they were themselves in the slaughtering business and were thus in competition with the growing Chicago industry. Moreover, many people living at a distance from Chicago doubted whether fresh meat could be conveyed to them in an edible condition, and their local butchers were not slow to encourage this doubt. Much the same situation existed in foreign lands. It was difficult for an Englishman to believe that beef dressed in Chicago and shipped to him by rail and water could compare with the "roast beef of old England." Also it was very necessary that the fresh meat which was produced every day in Chicago should be efficiently disposed of in the consuming localities. Otherwise car space would be consumed for storage, and dressed meat which could be preserved only at great expense would accumulate. These conditions made it desirable for the Chicago packers to establish branch selling agencies in all of the important cities of this country and abroad. They did so and soon made Chicago dressed meat a recognized standard. These selling agencies of the packers have grown in number until the larger concerns each have branch offices in as many as four hundred cities of the United States alone. There was thus added to the business of the former stock dealers a merchandising establishment world wide in scope.

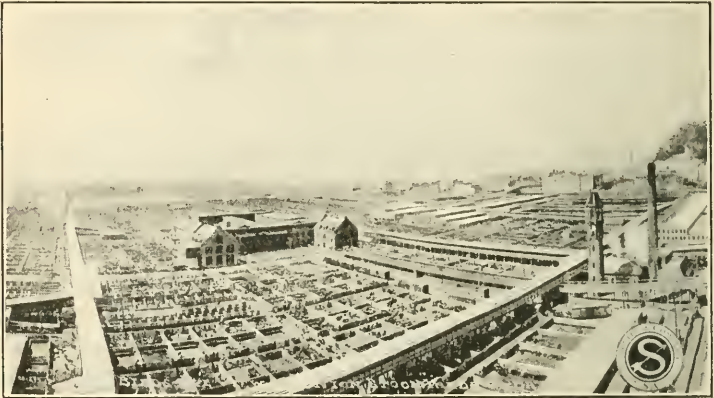
Nor was this all. Meat market keepers who bought beef from these agents in other cities began to request that they be supplied

with pork, mutton, and other products as well. The packers were not averse to doing this. Once their large plants had been built and their marketing organization set up they could handle these other products without much increase in their overhead costs, and by so doing, they were able to sell each unit of their product at a greater profit, or at a lower price, or both.

Overhead costs operated in another way to induce the packers further to expand the size and variety of their ventures. When the refrigerator cars were sent to various parts of the country they were at first returned empty. Here, plainly, was a great waste. It cost nearly as much to haul the cars empty as it cost to haul them loaded. The packers, therefore, looked about for goods which could be carried under refrigeration on the return trip and sold in Chicago. A system of buying was worked out and eventually fruit, butter, eggs, cheese, and vegetables of many sorts were being brought from every part of the country in the returning refrigerator cars. One way of making sure that these goods could be disposed of when they reached Chicago was to establish a preserving and marketing organization. This was done by more than one of the large packing plants. Thus the demands of their customers and the pressure of overhead costs caused the packers to become merchants in a great variety of goods.

The use of by-products.—As we have seen, the early methods of dressing meat discarded much as waste. But science was busy, and discoveries, one by one, showed valuable uses which could be made of the parts of animals which had been thrown away. It was found that the horns and hoofs could be used for buttons and for knife and cane handles; dried blood commanded a high price as a fertilizer; parts of the bones and cartilage could be turned into glue. A new invention made it possible to use parts of the fat, hitherto almost useless, for the manufacture of oleomargarine. Eventually, every minute scrap of the slaughtered animal was put to some profitable use. To find a market for some of these by-products, however, it was necessary that they be combined with other articles into a

manufactured form. This impelled the packers into a further expansion. To utilize their glue, for instance, the manufacture of sand paper, which takes large quantities of glue, was undertaken. Soap factories, glue works, curled hair industries, fertilizer plants and pharmaceutical laboratories were constructed to make the use of various by-products more profitable.



Courtesy of Swift & Co.

BIRD'S-EYE VIEW OF UNION STOCK YARDS TO-DAY

The scale of operations is better realized when one knows that the stock pens and packing plants occupy a space a mile in length and half a mile in width.

Risks are reduced. — As the scale of their operations expanded, the packers found that the larger business unit enabled them to carry more readily some of the risks of modern business enterprise. By the establishment of branch plants in many localities and even in foreign countries, as in South America, they tapped so many sources of supply of raw materials that unfavorable conditions in some localities could not disrupt their business in the way they could that of a smaller producer; by dealing in a tremendous range of products they were freed from such serious risks of unfavorable seasons as are borne by the dealer in a single commodity; by occupying so large a proportion of the field in which they operated they were able to secure

more stable prices, both in buying and in selling than can the small producer; by having agencies in so many communities and by dealing in so many products they were better able to tide themselves over shifts in demand than is the small-scale operator in a single commodity, and for that matter their tremendous advertising power enabled them to control these shifts to a considerable extent; by having a business of such magnitude that they could conduct scientific experimentation, they lessened the risk of their being displaced by some new method in the hands of a competitor; by the integration of many processes and plants, each single step was relieved of anxiety concerning the source of its raw material and the disposal of its finished product — a state of affairs quite different from that experienced by the small-scale, isolated producer. By having hundreds of agencies over the whole world, their information with respect to conditions affecting their business was much more varied and more accurate than the small producer can ordinarily hope to secure; by having their business scattered in so many localities, risk of serious disruption through political or industrial disorder was minimized, as were also the risks from fire.

We must realize that all this growth could not have taken place if surrounding conditions had not been helpful. The background conditions of the growth of the packing industry were in society at large — were in the social environment. Many factors in the social environment aided the growth of the packing industry. Means of communication and transportation that made possible large markets and wide sources of supply; a stable, orderly condition of political society that made the rights of property secure; a development of science that enabled the solution of knotty technical problems; a financial organization of society which could care for the amassing and handling of large funds; codes of business law and business ethics; emerging principles of business administration — these and many other features of our social environment were as truly a part of the story of the packing industry as was the refrigerator car.

Thus the business of meat packing developed from simple beginnings into one of tremendous size. But notice that its expansion shows three different forms of growth. It is large scale in the sense that each of *the various plants is large*. It is large scale in the sense that there are *combined under a single management several plants doing the same kinds of work*. It is large scale in the sense that *series of processes have been "integrated" into one concern*. To-day at least two of the largest packing companies have resources of over \$200,000,000 each. One of the largest operates 27 vast plants covering a total of 200 acres, with a daily killing capacity of 55,000 animals. Forty-five thousand workers are employed by this company, which sells 400 different products through 416 branch offices in this and in at least 12 foreign countries.¹

This story of the development of the packing industry is not concerned with the fact that the packers have been forced by the Federal government to disassociate some of their various enterprises. We are just now concerned only in seeing how a business may have incentives to become a large-scale business.

The rise of the United States Steel Corporation. — The steel industry furnishes another excellent example of expanding business units. One small plant, worth about \$5000, began manufacturing iron at Allegheny in 1858. By 1865, it had combined with other iron forges and was worth about \$300,000. Andrew Carnegie had by this time become the most important director of this concern. Rapidly the company used the policy of consolidation and integration. Iron mills were combined with blast furnaces, Bessemer steel converters, coke ovens, coal lands, and factories for making steel rails, beams, bars and angles. In 1892, the various so-called "Carnegie interests" were capitalized at \$25,000,000. Still farther went the process of integration. Railroads that were important in the shipment of ore were purchased, ore docks were built on the lakes, machinery for unloading ore ships was installed, and a branch company was organized to build a great fleet of boats for hauling

¹ Figures furnished by the Commercial Research Department of Swift & Company.

ore. A further step was taken when extensive ore fields of the Lake Superior region were purchased. Thus the control of steel manufacture from the ore fields to the finished steel rail was completed by the Carnegie Company.

In the meantime, other steel companies had also been growing. The immense amount of machinery of all these companies made their indirect costs extremely high, and caused them, in times of slack business, to engage in such severe competition that it became of the cutthroat variety. This situation was relieved when, in 1901, a number of the larger competitors of the Carnegie Company joined with it and formed a gigantic concern, called the United States Steel Corporation. As then organized, this company owned 149 steel works; extensive properties of ore, coal, limestone, and gas; more than 100 boats on the Great Lakes; and over 1000 miles of railroad. The property was capitalized at \$1,400,000,000.

Its growth since 1901 has been such that it continues to furnish an excellent illustration of our use of concentrated business as a means of production. A tremendous amount of our social energy is used each year by this giant mechanism. In 1916 it absorbed 33,000,000 tons of ore and the work power of 250,000 people. In return it gave us somewhere about half of our total supply of steel ingots, billets, rails, castings, nails, plates, structural shapes, sheet steel, wire rods, and tin plate. The total value of these was placed at \$850,600,000.

These cases illustrate forms of growth. — At the beginning of this chapter was the statement that there has been a phenomenal growth in the size of business units since the Industrial Revolution. These examples are not meant to show that *all* industries have become large. They are meant to show that there have been strong forces making for larger business units and that where there has been increase in size this increase of size has typically taken one or more of three forms. (1) In some cases individual plants, whether in primary industries or in manufacturing or in commerce, have become giants. In certain lines of industry this increase of the size of individual

plants has gone so far that notwithstanding a tremendous increase in output the total number of separate plants has shrunk. The iron and steel industry is a good illustration of this situation.

	1850	1860	1870	1880	1890	1900	1910	PERCENTAGE INCREASE 1910 OVER 1850
Number of establishments . . .	468	542	726	699	699	668	654	40
Average product . . .	\$43,600	\$97,000	\$275,000	\$419,000	\$683,000	\$1,203,500	\$2,119,000	4,760
Average capital . . .	\$46,700	\$82,000	\$161,000	\$295,000	\$591,000	\$ 858,000	\$2,282,000	4,787
Average number of employees	53	65	103	197	250	333	426	704

THE INCREASING SIZE OF IRON AND STEEL PLANTS

(2) In other cases, there is large-scale production in the sense of having under a single management several plants doing the same kind of work, each of which is itself likely to be quite large. The packing industry, a "chain" of hotels, or of ten-cent stores, is a case in point. Such large business units represent "horizontal grouping" or "side by side grouping" of "like plants."

(3) In still other cases the large size has resulted from knitting together under one control plants or processes that formerly were independent units in some sequence or series (see Study IX) of production. For example, the United States Steel Corporation includes plants and processes constituting several such series. It owns ore mines, lake boats, rail systems, smelters, steel mills, and all the other facilities necessary to carry from the very beginning to the end the production of a keg of nails or an iron bridge. This is called "integration of industry" or "vertical grouping."

The fields of the activities of the large business unit. — The meat packing and the steel industries, moreover, are illustrations of a fairly widespread tendency toward larger units of business.

“Almost all departments of brass work, cutlery, foundry supplies, hardware, the special iron and steel trades, jewellery, musical instruments, sewing machines, fire-arms, shipbuilding, come under this economy of large production; other trades conforming in a very marked degree to the same law are boots and shoes (factory products), bricks and tiles, carriages and cars, chemicals, clocks, cooperage, leather, saddlery, malt liquors, paper and wood pulp, pottery, soap and candles, smoking tobacco, umbrellas.

“It is, however, not to manufacture, but to transport industry that we must look for the most conspicuous results of the concentrative influence of machinery. The substitute of the railroad for the pack-wagon and the stage-coach, of the steamship for the sailing-vessel, exhibits the largest advance of modern capitalism.

“Next to transport, the department of business where the concentrative forces are in strongest and most general operation is finance, using that term to cover banking and insurance, stockbroking, bill-broking and money-lending of every kind.

“These monetary businesses formed the cradle of modern capitalism; they were the earliest to adopt the form of joint-stock enterprise, and to assume an international area of operation; capital expands in them out of all relation to labor, and the advantage of a large capital over a small capital is normally greater than in any other business operation.

“The concentrative forces in commerce are less easily ascertained; but, as regards wholesale operations, there can be no doubt that an increasing proportion of the distributive business is passing into the hands of large and growing firms. Over a considerable area of wholesale trade, the separate mercantile stage has been eliminated, especially where the goods in question are raw materials or unfinished manufactures. Either the manufacturer purchases his materials direct from the producers, . . . or sets up producing plants of his own, as where jam manufacturers own fruit plantations or iron-works acquire collieries. In many other cases the producer supplies the retailer direct.

“The application of joint-stock enterprise to retail trading goes on apace. Gigantic stores tending to become ‘universal providers,’ . . . or covering a wide area of wants, . . . spring up in large cities, taking an increasing proportion of retail business. Other companies, more specialized, extend their business through numerous branches, as in the grocery and provision trades, milk, restaurants, fish and game trades. In some of these cases the retail companies strengthen themselves by

entering the productive processes of farming and manufacture; more frequently the manufacturers themselves acquire retail stores or operate through 'tied' shops, as in the shoe, jewellery and tobacco trades.

"All general measurements of the concentrative forces of capitalism as applied to agriculture are extremely difficult to compass.

"In such countries, however, as the United States, where agricultural machinery has been very fully applied, it is clearly established that the size and value of farms increase in those departments of agriculture where machinery can be most largely utilized."¹

The advantages of the large business unit. — Our survey of the rise of the packing industry makes it possible for us to list in brief form the more important advantages which our large business units enjoy.

The first great group of advantages centers around the lowered costs of production arising from such factors as these: (1) the spreading of the indirect costs of a business over a large number of units of business; (2) the better utilization of the principle of division of labor in the organization of the business; (3) the better mechanical equipment which large firms can afford to buy because they can spread the cost over more business; (4) cheaper power arising from the fact that power can usually be produced more cheaply per unit when produced in large quantities; (5) better utilization of waste, either through selling it in large quantities, or through the development of by-products; (6) the regulation of production by running some plants to full capacity, which is generally economical, and closing down other plants in seasons of short demand; (7) the maintenance of scientific laboratories leading to continual improvements in methods and processes.

A second group of advantages centers about the greater ability of the large concerns to bear risks. This has already been discussed in sufficient detail. (See p. 256.)

The third group of advantages has to do with the market, including both purchasing and selling, and embraces such matters as the following: (1) purchasing over a wide area enables the

¹ J. A. Hobson, *The Evolution of Modern Capitalism*, pp. 117-122.

concentration of purchases in the most favorable market under the most favorable conditions; (2) there is greater probability of regular demand for products when the scope of operations is great, either with respect to the territories involved or to the wide range of commodities; (3) goods may be advertised more effectively; for advertising cost can be spread over a larger number of units of product; (4) lower transportation charges can usually be secured (*a*) by shipment in large quantities, since carload lots have lower rates than less than carload lots, (*b*) by distributing plants in various parts of the country so that the haul to the market will be a short one — this is sometimes called the saving of cross freights; (5) resources are available for the development of distant markets, and this may be highly important from the point of view of spreading indirect cost over more units; (6) through integration, the “market” connections of each unit are secured.

The fourth group of advantages has to do with the administration of the business and includes: (1) the ability of the large concern to pay the amount necessary to secure a high-grade manager; (2) a corresponding ability to secure high-grade men in the subordinate positions, such as purchasing agents, salesmen, labor administrators, etc.; (3) a corresponding ability to employ high-grade technological experts, such as chemists, geologists, and accountants; (4) the ability to reduce the expenses of administration by eliminating some employees, for example, when integration eliminates the purchasing and sales agents who formerly made connections between two of the units or processes which are integrated.

The small firm still persists. — In spite of all these advantages the small firm still persists in many industries and we have no reason to suppose that it is fated to disappear. Its hold is particularly strong where either the raw materials or the processes concerned are not capable of standardization, for large-scale industry necessarily depends upon standardization and routine. It has a firm grip also in those industries where varying individual tastes of consumers must be met; or wher-

ever the personal relation between buyer and seller is highly important. In producing "fitted" clothes, fine rugs, elaborately bound books, high-grade furniture, and all forms of art work, the small business unit continues to hold its own. Then, too, many small firms grow up as satellites of large plants. On the flanks of the great packing houses, for instance, are a swarm of smaller concerns that thrive by making repairs, building means of conveyance, using surplus by-product materials, and in other ways making themselves complementary to the larger concerns.

Even in the fields which we have come to consider particularly appropriate to "big business" the small firm has by no means disappeared. Sometimes it is favored by public opinion, and thus, through its customers rallying to its support, secures stability of demand. It always possesses the advantage of having its management in more intimate and personal touch with detail than can ever be the case with the large business unit; its employees are likely to take a keener and more intelligent interest in its affairs than will the employees of the routinized large-scale businesses.

What is the size of maximum efficiency? — Let us again recall to our minds the fact that in this lesson we are not primarily concerned with monopolies or trusts. They are to be considered later. (See Study XVII.) The size of maximum efficiency of a business unit may or may not be reached before it practically controls its field and is thus called a monopoly. What is the size of maximum efficiency in modern business? There is no definite answer. It varies from time to time and from industry to industry. It depends upon the technique of production, upon the market and the administration of the market, upon the technique of business administration, and all these factors reach far back into the general social environment. There is, therefore, no fixed goal with respect to the size of maximum efficiency. The goal has been up to this time a rapidly changing one.

PROBLEMS

1. Distinguish between large production and large-scale production. In which did the clothier of the domestic system engage?
2. In the table on page 260 how do you explain the increase in the number of establishments up to 1870 and its decrease thereafter? Was it because the demand for iron and steel fell off?
3. Name some cases of business units of large size which are not monopolies. Are large-scale production and monopoly synonymous?
4. In the development of the packing industry cite cases where they sought to secure the larger business unit in order to save in the costs of manufacture.
5. Cite cases where they sought to increase the size of the business unit in order to improve their relationship to the market.
6. Cite cases where they reduced risks by increasing the size of the business unit.
7. What type or types of concentration are represented by the packing plants? By the United States Steel Corporation? By a department store?
8. Give examples of the integration of industry in mining; in manufacturing; in selling.
9. Keeping in mind that concentration is a relative term (a business unit is "large" as compared with others), what are the large-scale business organizations in your community?
10. "The refrigerator car caused the packing industry to be located in the West." Explain what is meant by this statement.
11. "The invention of the refrigerator car almost forced Chicago meat packers to integrate slaughtering with buying and selling." Explain.
12. What would you list as the overhead charges involved in sending out salesmen to sell goods? Is it true that the more lines a salesman carries, the less will be the cost per unit of business done? Is this true for an indefinite number of lines?
13. For which of the following articles is a large-scale producing plant appropriate: hand-made shoes; machine-made shoes; jewelry; nails; cut glass; orchids; mowing machines?

14. What advantages has a large store such as Marshall Field's, or Wanamaker's, over a small shop?

15. Is the mail order house an illustration of large-scale production? What factors have made the mail order house possible? Answer the same questions for the department store.

16. Is it likely that large factories will ever be devoted to portrait painting? Give reasons.

17. Look through the list of advantages of the large business unit given on page 262, asking yourself, in the case of each advantage, whether a business must have a monopoly in order to secure that advantage.

18. A financial statement published by certain packers showed that during one year the average price paid for a thousand-pound steer was \$62.50. The meat from such a steer was sold for \$58.65, which is nearly \$4 less than was paid for the live animal. How could this be true?

19. A country butcher recently said, "I don't understand how Chicago packers can sell meat cheaper than I can. They pay ten cents more an hour to get their slaughtering done. How can they still undersell me?" Can you explain it to him?

20. "Large concerns can usually buy cheaper and sell lower." Why can a concern afford to sell more cheaply in large quantities? Why can it buy at a lower price by buying in large quantities?

21. Examine the pages of any magazine and pick out one or two articles for which a demand has been created by means of advertising. Why is a large concern at an advantage in creating a demand by this method? Is it desirable from the point of view of society that such demand should be created? (See p. 380.)

22. Should you expect large-scale production to be more successful in the manufacture of walking shoes, or of women's hats? Why?

23. Why do the custom tailor and dressmaker continue to have trade? Why does not some enterprising American open a factory for manufacturing oriental rugs?

24. Are there any disadvantages in large-scale production? If so, are they disadvantages to the worker; to society; to the managing owner; to consumers?

25. Are watches produced by the factory cheaper than those made by hand? If so, are they as good? Must the wages of the factory

workman be lower than those of the craftsman? Must the capital invested be larger?

26. "The size of maximum efficiency depends in part upon the technique of production." Explain.

27. "The size of maximum efficiency depends upon the market and the administration of the market." Explain.

28. "The size of maximum efficiency depends in part upon the technique of business administration." Explain.

29. Make an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 634-640, Selections 252-258.

Bureau of Education, *Lessons in Community and National Life*:

Series A, Lesson A-25, Wright, "The Integration of the Greatest Manufacturing Concern in the United States."

Lesson A-26, Clark, "Concentration and Control in the Railroad Industry."

Series B, Lesson B-26, Duncan, "Concentration in the Marketing of Citrus Fruits."

STUDY XVI

THE MORE USUAL TYPES OF BUSINESS UNITS

PURPOSES OF THIS STUDY :

1. To see the various types of business organization which we use in directing our social resources to the production of want-gratifying goods.
2. To get some idea of the circumstances under which each type is appropriately used.

When the business man has decided that it will be profitable to go into business, that is, to direct social resources to producing some form of economic goods, one of the first matters in which he is interested is the type of business organization which he should use.

The individual firm. — The experience of a young man who, a few years ago, went into the printing business shows how different types of business organization are adapted to various needs. This man had been employed as a works manager in a huge printing establishment. He saw that his employer was making money and decided that he himself knew the business well enough and had sufficient business ability to become an organizer. During his years of work as an employee, he had saved enough money to rent a small building and to buy the machinery necessary to begin work. He was, of course, familiar with printing machinery and he could quite readily decide what machines would be best for a small shop and how they could best be arranged.

Before he could begin work it was necessary for him to buy materials, such as paper and ink. He found that he was not very well trained for making these purchases. His work had taught him a great deal about conducting the operations inside

the plant, but it had not given him much information concerning the places from which materials came or the prices which should be paid for them. It was only after a great deal of difficulty that he made satisfactory contracts for the delivery of materials at his plant. He was even more handicapped in the matter of procuring orders for printing. He had learned almost nothing about this phase of the business. But after many mistakes he secured a fair and steadily growing volume of orders.

After he had conducted his business several months, he discovered that his funds were getting low. Curiously enough, they were getting low because his business was growing so rapidly. He had used most of his sayings in buying his machinery, his "fixed capital," as business men call it. His running expenses, such as those for light, heat, materials, and wages of workmen, had to be met at regular intervals, and these amounts were steadily increasing. Of course the amounts due from his customers were also getting larger, but he had to meet most of his expenses prior to the delivery of goods to customers. His customers were "slow" in making payments; others paid regularly at the end of thirty days after he had finished his work for them. Increasingly he found his business "cramped" by his too slender margin of "working capital."

In this emergency he went to a bank and asked for a loan. The banker after making an investigation of the business and of the reputation of the owner, decided to grant the loan. With the money thus procured the manager was able to continue his business successfully. By the end of the first year he had repaid the bank, and he found that it was unnecessary to repeat this particular loan, for he was making profits and he "put his profits back into the business."

He had not deceived himself into believing he was making more profits than was really the case. He counted as profits only the amount which remained after he had met all his running expenses; had set aside a sum to cover depreciation of his machinery and other equipment due to wear and tear

and to obsolescence; had paid himself a reasonable sum for his own labor; and had taken account of the interest on his investment. Everything considered, his success for the first year had been little short of remarkable.

The partnership. — In thinking back over his experiences of the year, and in forecasting the situation which faced him in the coming year with a rapidly expanding business, he came to the conclusion that it would be better for him to take in a partner, particularly if he could find one expert in buying and selling, so that he could devote his own attention to managing the shop. A salesman of another printing establishment, who had accumulated a savings account, seemed a desirable partner and he was induced to join the business. The two men consulted a lawyer, who drew up for them a simple partnership agreement stating in a clear way the work to be done by each of them, the amount of money which each had invested, and the agreement that profits and losses arising from the business should be shared equally.

THE PARTNERSHIP ARTICLES

James E. Smith and John Perkins, both of the city of Chicago, Illinois, hereby mutually agree to become partners under the firm name of "Smith and Perkins" to conduct the trade and business of printing in the said city for the period of five years from date.

The said Smith invests his stock of presses, paper, ink and other material, estimated to be worth ten thousand dollars (\$10,000), and the said Perkins invests ten thousand dollars (\$10,000) in cash.

Both partners shall give their entire time and shall share losses and gains equally.

All amounts earned or received by either partner for work, materials, or anything pertaining to the business, shall be deposited in the Corn Exchange National Bank of Chicago in the name of both partners, and shall be checked out as needed for expenses and supplies by the signatures of both partners; and an equal amount shall be drawn each Monday morning for each partner for salary and personal expenses, but a balance of five hundred dollars (\$500) shall always be kept and held.

When the firm shall be dissolved the balance on hand shall be divided equally, and all debts shall be paid from the money in bank, after which the money shall be divided equally between the partners.

Witness our hands and seals this sixth day of September, nineteen thirteen,

Attest:

M. J. Jones

James E. Smith (L.S.)

John Perkins (L.S.)

The lawyer made it clear to them that laws had been developed which made it possible for men to form the types of business organization which would be most useful in carrying on their enterprises. "It is because there are such rules of the game," said he, "that we are able to deal with one another with confidence. In a partnership, such as you have formed, each partner becomes, as it were, an agent of the other. An agent, acting within the scope of his authority, binds his principal. If either of you makes an agreement with other persons, concerning a matter of your business, both of you are bound. Furthermore, if your firm, as your partnership is called at law, is not successful in its undertakings, each of you may be held liable, if it is necessary to pay your creditors, not only for the amount you have put into this business, but also for whatever may be necessary out of any other money or property which either of you possesses."

The new firm was very successful. With each partner devoting his time to the field in which he was a specialist, substantial gains were made. At times there were disagreements about the right method of conducting the general affairs of the business, but more often the discussions of the two men resulted in better business policies than either would have formulated alone. Once during the year it was necessary to borrow some money from the bank. On this occasion the banker was more ready to make the loan than he had been the year before. The business was now much better established, and the promise of two men, where each was "unlimitedly liable," made the banker more confident that the money would be repaid.

The corporation. — The business continued to grow. It

became wise to take in a third and then a fourth partner, and presently the amount of money invested in the business was \$100,000. Somewhat unexpectedly an opportunity arose which, if grasped, would involve practically doubling their investment. Each of the partners had saved some money from the profits of the business, but they did not have nearly enough to make the changes desired. They hesitated to take in more partners, for since one partner may bind all, the partnership relation is a very personal one and not to be entered upon lightly. In this situation they again consulted their lawyer, and he advised them to form a corporation. In talking with them he said substantially this:

“It is easy and inexpensive to form a corporation and to get all the money that is necessary to expand your business. We should first secure certain blanks from the Secretary of State at the state capital; these must be filled out giving your names and addresses as incorporators, the name of the new company, the purpose for which it is to be formed, the principal place at which it will transact business, the amount of money which is to be invested, the way in which this money is to be obtained, and some statements regarding the way the new company will be managed. After this information is filed with the proper state officers, we shall be given a charter or certificate of incorporation. Here is a sample of such a charter or certificate of incorporation issued under the laws of one state.”

CERTIFICATE OF INCORPORATION

We, the undersigned, in order to form a corporation for the purposes hereinafter set forth, under and pursuant to the provisions of the act of the legislature of the State of _____ entitled “An Act Concerning Corporations,” and the acts amendatory thereof, and supplemental thereto, do hereby certify as follows:

ARTICLE I

The name of the corporation is:

ARTICLE II

The principal and registered office of the company is in _____ and the name of the agent therein, and in charge thereof, and upon whom process against this corporation may be served, is:

or more of these certificates has an interest in the new business. You men who have been operating the old business as partners may of course exchange your ownership of the shop, machinery and materials which you have on hand, for shares of stock. You may also purchase additional shares in the same way as anyone else.

“You will not have as much to say about the direction of this corporation as you have in your partnership, because, unless it is otherwise specified in the charter, the ownership of each share carries with it the right to one vote at stockholders’ meetings. The business policies of a corporation are usually left in the hands of a board of directors who are selected by the stockholders at an annual meeting. Since each share of stock gives one vote, those owning a majority of the shares will be able to elect the directors they choose. Of course, if you men hold a majority of the shares, you can readily keep real control of the corporation. Indeed, since small shareholders are generally careless about annual meetings, you men could keep control by having less than a majority of stock if the rest of the stock were widely distributed.

“It will not be difficult to get even people who do not know you and who are unfamiliar with the printing business to subscribe for your stock. It is known that your business is prosperous, and a corporation differs sharply from a partnership in one very important respect. When a corporation is formed it is a ‘person’ in the eyes of the law. This ‘person’ does business. *It* is unlimitedly liable to creditors for debts, but the *people who have subscribed* to its shares are liable only to the extent specified in the corporation law of the state. Usually they are liable only to the amount they subscribe (single liability); in some cases, they are liable for as much more (double liability). This means that if your new business is unsuccessful each stockholder has ‘limited liability.’ People would more readily invest in a corporation, therefore, than they would join a partnership where the liability is unlimited. Then, too, a shareholder can get out of a corporation by selling his stock to some one else. The corporation goes right on. In a partnership, on the other hand, the death or withdrawal of a partner means the end of the partnership.

“I ought to say this too. When you form a corporation you enter into a contract, as truly as you did when you formed a partnership. The character of your partnership contract was set forth in the partnership articles. The character of your corporation contract is set forth

in the corporation charter, which is issued in terms of the state corporation law, which is carried out in terms of the state and federal constitutions, all of which are interpreted according to the 'unwritten law' that we call common law. You can arrange to have almost anything put in your charter which is not forbidden by these other instruments, and anything you do put in your charter must be carried out in the light of these other instruments. We must accordingly be careful to put in our charter just exactly the regulations and provisions which we wish applicable to the new business."

The partners decided to form a corporation and directed the lawyer to take charge of the matter for them. As soon as permission had been received from the Secretary of State, shares in the new corporation were offered for subscription. The original partners retained control by subscribing for 260 shares each, which they paid for in property and cash. The remaining 960 shares were quickly taken by others. At a meeting of the shareholders, the four original partners and other people satisfactory to them were elected directors. The board of directors proceeded at once to arrange for managing officials and to direct the affairs of the corporation. The business continued to be successful. Every year the gains were divided among the shareholders in proportion to the number of shares each man owned. This was expressed by saying that each received a certain per cent of the par value of his stock. These "dividends" gradually became quite large so that a share of stock would sell in the market for much more than its par or face value. The stock was said to be "above par."

Comparison of the leading types. — The study of this printing business illustrates the more usual types of business organization: the individual firm, the partnership, and the corporation. Each of these forms has its own advantages and disadvantages; each is better fitted than the others to occupy certain fields.

The strength of the individual firm lies in the strong personal interest of the owner and manager in the firm's success. All

the gains are his ; all the losses are his ; and he feels a definite responsibility for both gains and losses. He is, accordingly, quick to introduce economies, to check extravagances, and to "work night and day" for the upbuilding of the business. It is a form of organization particularly well adapted to small-scale enterprise, and there we find it predominant.

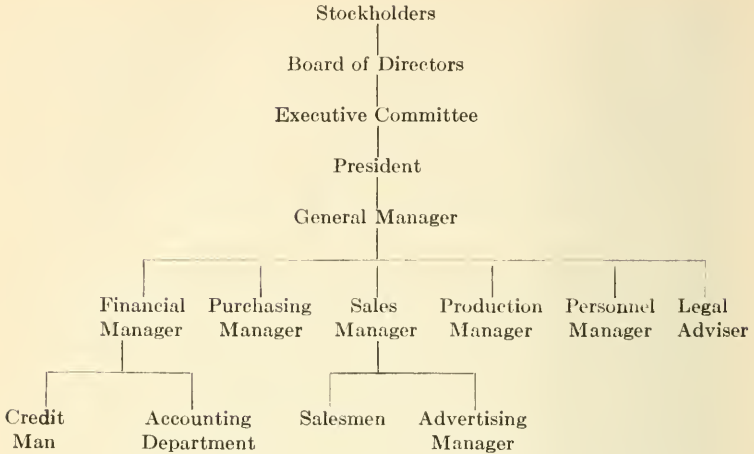
When larger funds are required for successful operation of the business than are ordinarily available in the individual firm, either a partnership or a corporation is likely to be formed. The advantage of the partnership over the individual firm lies primarily in its larger resources, although, as we saw in the case of the printing business, it may also make possible a better organization of the managing staff. Partners have practically as strong a personal interest as has the individual owner, for they also take all the gains, bear all the losses, and are responsible for both. The outstanding difficulties of the partnership are these: the death or bankruptcy or withdrawal of one partner terminates the partnership and thus introduces an element of uncertainty with respect to the continuity of the business. Again, since an agent may bind the principal, there soon comes a limit to the number of partners which may wisely be taken into the business. "One must know a great deal concerning a man before he makes him a partner."

The corporation is the form of business enterprise commonly used when large funds are necessary. People regard stock certificates favorably as investments because of the limited liability of the stockholder and because stock certificates may pass from hand to hand without affecting the business in the slightest. Also, as we shall see later, corporations make use of a form of security, called bonds, for those who desire particularly safe investments. Again, since stock certificates and bonds may be issued with any authorized par value (stock certificates commonly range from \$1 to \$100 par value, and are usually either \$50 or \$100; bonds commonly range from \$50 to \$1000 par value and are usually either \$100, \$500 or \$1000) it is possible to issue them in such denominations as to tap the

savings of great numbers of small investors and to enable large investors to distribute their holdings among many companies and thus "spread their risks." The corporation is, accordingly, a useful instrument in amassing funds for business enterprises. A corporation engaged in a promising venture can easily have stocks and bonds outstanding to the amount of millions and even hundreds of millions of dollars.

There are disadvantages connected with the corporation, however. The motive forces actuating its managers are not as strong as those which influence the individual owner or the partner. In the corporation the manager is a "hired man" and all the "bonuses for efficient management" in the world will neither conceal the fact, nor give him a vital personal interest in the affairs of the concern. Ownership of the business has been divorced from its management with resultant bad effects on the management. Even the board of directors of a corporation ordinarily has less personal interest than was the case with the printing establishment we have been studying. In the corporation, accordingly, routine and "red tape" too often drive out initiative and efficiency. Such a statement, of course, is not applicable to every case, and particularly it is not likely to be applicable to the rather numerous enterprises which have assumed a corporate form as a means of increasing their resources although they are really private businesses or family businesses, the majority of the stock being in the hands of a single individual or in the hands of a family.

The chart (p. 278) is designed to show the manner in which the owners of the corporation have concentrated the power of their funds in the hands of a small group of men who take charge of the active management of the business. It is this small group, the directors, or an executive committee chosen by them, or perhaps only a president or manager whom they select, that is the real authority in organizing affairs within the business unit.



POSSIBLE ORGANIZATION CHART OF A CORPORATE BUSINESS

The corporate form's evils must be corrected.— In providing an organization which makes possible the large-scale business unit, the corporation renders good service to society, but this must not blind us to the fact that certain evils are connected with it. Sometimes our corporation laws are rather lax and corporations are formed primarily to “fleece” investors; sometimes the so-called minority stockholders, being outvoted by the majority holders, find themselves treated rather badly and get but cold comfort from the fact that they can escape from the situation by selling their stock; sometimes boards of directors and managers abuse their trust and make money out of dealing in the corporate securities, as for example by spreading false rumors depreciating the company's prospects. This tends to cause the stock to fall in price in the market. The manipulators then buy quantities of it, let the real truth come out and sell the stock for a gain on the resultant rise of price. Sometimes a group gets control in one corporation and deliberately wrecks it in order to build up some other corporation with which they are more profitably associated. There are here some very real problems

which are as yet far from solution. Schemes of limited voting, by which holders of more than a certain number of shares of stock do not get one vote for each of these additional shares; plans for proportional representation, by which the minority may always be reasonably certain of being at least represented on the board of directors; "blue sky" laws, perhaps so called because they are designed to protect investors from purchasing shares in corporations which have no real assets but air and sky; laws forbidding more than a certain percentage of stock to be held under one control — these are illustrations of the ways in which some of our states are trying to improve the corporation.

One of the worst evils of the corporation is what is sometimes called "absentee capitalism." A corporation is a very impersonal thing. It is very easy for a shareholder to be quite indifferent concerning what the corporation does, so long as he gets dividends. The corporation may engage in practices toward its customers, or toward its workers, or toward the public, which may be quite improper and of which the stockholder would disapprove if they were called to his attention. The chances are, however, that he will never hear of them. Of course he ought to hear of them; of course he is really responsible for them; but the responsibility sits lightly upon him, and this frequently leads to an attitude of indifference toward all sorts of improper business practices. This situation is to no small extent responsible for the width of the gulf between employers and employees to-day. The ultimate employer in a corporation is the stockholder, but he practically never has any contact with the worker. This tends to make still more impersonal the handling of labor matters in large-scale industry; tends to give the worker more and more a sense of being a mere cog in a machine.

There is, accordingly, in the corporation to-day great concentration of power in the form of massed funds accompanied by small and scattered responsibility. The managing officers do not feel much responsibility to society; they are working

in an impersonal way for the shareholders. The shareholders have a limited financial liability and tend to take little interest in what the firm does, provided "it pays." Says Carver: "The difference between a man and a monster is precisely that: the monster feels a sense of power and does not feel a sense of responsibility."¹ We must do something to restore to the corporation and to the shareholders a sense of responsibility for their acts; something to make certain beyond peradventure that it will not become a monster in industrial society.

The corporation's part in our business life.—There was a time when almost all businesses were on such a scale that they could be conducted by individuals or by partnerships. With the incoming of machine industry, however, with its large overhead costs, its expensive processes, and its huge bills for wages and materials, the corporation came more and more to be used. In the United States the great development of corporations has occurred in the last seventy-five years and particularly in the last generation. A careful student² estimates that over 92 per cent of the mineral output of the country is produced by corporation-owned mines; over 77 per cent of our manufactured goods are made by corporations; practically all of our transportation and communication by water, rail, and wire is conducted by corporations; and in commercial enterprises the corporation is playing a more and more important part. He estimates that 39 per cent of the total products of American industry were turned out by corporations in 1899 and over 44 per cent in 1909. Perhaps to-day it is 50 per cent of the total. That it is not much greater than 50 per cent is due to the fact that in agriculture the individual entrepreneur still largely holds the field.

Notice in the following table³ how the number of corporations in manufactures has increased, but more especially how the average number of men employed by corporations compares

¹ T. N. Carver, *Principles of Political Economy*, pp. 171-172.

² W. I. King, *The Wealth and Income of the People of the United States*, pp. 208-211.

³ Adapted from *The Abstract of the Census of Manufactures*, 1914, pp. 374, 385.

with the average number employed by individually owned businesses. Notice carefully, also, how large comparatively is the value of products produced by corporations.

CHARACTER OF OWNERSHIP	NUMBER		WAGE-EARNERS		VALUE OF PRODUCTS		
	Establishments	Per Cent Distribution	Average Number	Average per Establishment	Amount	Average per Establishment	Per Cent Distribution
All classes:							
1914 . . .	275,791	100.0	7,036,337	25.5	\$24,246,434,724	\$ 87,915	100.0
1909 . . .	268,491	100.0	6,615,046	25.0	20,672,051,870	76,993	100.0
1904 . . .	216,180	100.0	5,468,383	25.0	14,793,902,563	68,433	100.0
Individuals:							
1914 . . .	142,436	51.6	707,568	5.0	1,925,518,298	13,518	7.9
1909 . . .	140,605	52.4	804,883	6.0	2,042,061,500	14,523	9.9
1904 . . .	113,946	52.7	755,923	7.0	1,702,830,624	14,944	11.5
Corporations:							
1914 . . .	78,151	28.3	5,649,646	72.0	20,181,279,071	258,174	83.2
1909 . . .	69,501	25.9	5,002,393	72.0	16,341,116,634	235,121	79.0
1904 . . .	51,097	23.6	3,862,698	76.0	10,904,069,307	213,399	73.7
All others:							
1914 . . .	55,204	20.0	679,123	12.0	2,139,637,355	38,835	8.8
1909 . . .	58,385	21.7	807,770	18.0	2,288,873,736	39,203	11.1
1904 . . .	51,137	23.7	849,762	21.0	2,187,002,632	42,768	14.8

THE PLACE OF THE CORPORATE FORM IN MANUFACTURES

Shares of stock and bonds.—It is worth while to get a little better understanding of shares of stock and bonds. These instruments are sometimes spoken of as corporate securities. We can take here only a bird's-eye view, for these securities are put out in a great many varieties in order to appeal to all possible classes of investors. In broad outline, however, the matter is simple enough; shares of stock represent ownership in the business, bonds represent the loan of money to the business.

KINDS OF STOCKS

Stocks { common { ordinary or non-cumulative
 { preferred { cumulative

The stock which we saw issued in our account of the printing establishment was "common stock." Sometimes "preferred

SHARES

SEVEN PER CENT CUMULATIVE PREFERRED STOCK



NUMBER

INCORPORATED UNDER THE LAWS OF THE STATE OF NEW JERSEY

United States Steel Corporation

This is to Certify that

is the owner of _____ fully paid and non-assessible shares of the par value of one hundred dollars each, in the PREFERRED CAPITAL STOCK of United States Steel Corporation, transferable only in person or by attorney upon the books of said Corporation, upon surrender of this certificate. The holders of the preferred stock shall be entitled to receive, when and as declared, from the surplus or net profits of the Corporation, yearly dividends at the rate of seven per centum per annum, and no more, payable quarterly on dates to be fixed by the by-laws. The dividends on the preferred stock shall be cumulative, and shall be payable before any dividend on the common stock shall be paid or set apart, so that, if in any year dividends amounting to seven per cent shall not have been paid thereon, the deficiency shall be payable before any dividends shall be paid upon or set apart for the common stock. Whenever all cumulative dividends on the preferred stock for all previous years shall have been declared and shall have become payable, and the accrued quarterly installments for the current year shall have been declared, and the company shall have paid such cumulative dividends for previous years and such accrued quarterly installments, or shall have set aside from its surplus or net profits a sum sufficient for the payment thereof, the Board of Directors may declare dividends on the common stock, payable then or thereafter, out of any remaining surplus or net profits. In the event of any liquidation or dissolution or winding up (whether voluntary or involuntary) of the Corporation, the holders of the preferred stock shall be entitled to be paid in full both the par amount of their shares and the unpaid dividends accrued thereon, before any amount shall be paid to the holders of the common stock, and after the payment to the holders of the preferred stock of its par value, and the unpaid accrued dividends thereon, the remaining assets and funds shall be divided and paid to the holders of the common stock according to their respective shares. The preferred stock and the common stock may be increased as provided in the Certificate of Incorporation. This certificate is not valid without the signatures of the Transfer Agent and Registrar of Transfers. WITNESS the signatures of the President, or of a Vice-President, and of the Treasurer or of an Assistant Treasurer, of said Corporation.

by _____ HUOSON TRUST COMPANY, TRANSFER AGENT.

REGISTERED IN GENERAL NEW YORK SECURITY AND TRUST COMPANY.

ASST. SECRETARY, VICE PRESIDENT, ASST. TREASURER, TREASURER

SHARES \$100 EACH

A PREFERRED STOCK CERTIFICATE

Is it cumulative preferred? Is it preferred as to dividend payments? As to assets?

No. _____ United States of America. State of Ohio. \$1,000.

The Columbus Consolidated Street Railroad Company

First Mortgage Twenty Year Five Per Cent. Gold Bond

FOR VALUE RECEIVED, THE COLUMBUS CONSOLIDATED STREET RAILROAD COMPANY, a corporation organized and existing under the Laws of the State of Ohio and operating street railroads in the City of Columbus, promises to pay to the Central Trust Company of New York, Trustee, or to the bearer or registered owner hereof, ONE THOUSAND DOLLARS, in gold coin of the United States of America, of the present standard, on the first day of July, 1909, and to pay interest thereon at the rate of five per cent per annum from the first day of July, 1889, on the first days of January and July in each year, on the presentation and surrender of the coupons hereto annexed as they severally become due, until said principal sum shall be paid, both principal and interest of this bond being payable at the agency of said Railroad Company in the City of New York. This bond is subject to redemption on or after July 1, 1894, at 110 per cent of the par value thereof, with accrued interest, out of a sinking fund of \$22,500 a year, beginning with that date, as provided in the mortgage herein described. This bond is one of a series of Eight Hundred bonds, of like tenor, date, and amount, numbered consecutively from One to Eight Hundred, both inclusive, and amounting in the aggregate to Eight Hundred Thousand Dollars, which are all equally secured by a mortgage of said Railroad Company in the nature of a conveyance in trust, dated July 1, 1889, and duly recorded, conveying all the property and franchises of said Railroad Company to said Trust Company, in trust, for the benefit of the holders of said bonds, to all the provisions of which mortgage this bond is subject. In case of default for six months after due demand in payment of any interest on any of said bonds, the principal of all thereof may be declared due, as provided in said mortgage. The principal of this bond may be registered on the books of said Railroad Company at its said agency, and registration thereof noted hereon, after which no transfer thereof shall be valid, except on said books, until after registered transfer to bearer, when the principal of the bond will again become transferable by delivery. The coupons annexed to this bond will always be transferable by delivery. This bond shall not be valid unless authenticated by the Certificate of the trustee of said mortgage.

IN WITNESS WHEREOF, said Railroad Company has caused its corporate seal to be hereto affixed, and this bond to be subscribed by its President and Secretary, and the name of its Treasurer to be engraved on the several coupons hereto annexed, at the City of Columbus, in the State of Ohio, this first day of July in the year Eighteen Hundred and Eighty-nine.

.....Secretary
President

A BOND OF A PUBLIC UTILITY COMPANY

Is it a registered bond? A mortgage bond? At what point does it read like an ordinary promissory note?

stock " is used. It may be " preferred " (have prior claim) as compared with the common stock, with respect to the distribution of profits or with respect to the division of assets when the corporation goes out of business, or with respect to both. On the other hand, the extent of its participation in profits is usually limited to a certain per cent, whereas the common stockholder is not limited; he gets all that is left, be it large or small, and is therefore sometimes called the *residual claimant*. Thus if one owns a share of 7 per cent preferred stock, he is entitled to a dividend of seven per cent on the par value of his stock before any dividends are declared on the common stock. The common stockholders get what is left. Sometimes it is nothing; but corporations have been known to pay 20 per cent, 50 per cent, and occasionally much more to common stockholders. Ordinary preferred stock gets its dividends only in those years in which profits make it possible. The rights which the holder of cumulative preferred stock has to dividends cumulate or heap up year after year, in case dividends are not paid because profits are small. Thus if a corporation has 7 per cent cumulative preferred stock which has not paid dividends for five years, the owner of such stock will ordinarily be entitled to 35 per cent dividends before any dividend can be declared on the common stock.

It will be easier to understand bonds if you think of them as simply a kind of promissory note. They are the promises of the corporation to pay back after a certain period of years (generally a rather long period) money which has been loaned to the corporation by the bondholders; they promise also that a certain rate of interest will be paid the lender meanwhile. The claim of the bondholder on earnings and on property in case of a dissolution of a corporation is prior to that of the stockholders. Bonds are thus " safer " for the investor than are stocks. On the other hand, their rate of interest is usually lower than even the fixed rate of the preferred stock. A mere list of the various kinds of bonds that it has been found worth while to issue would take several pages.

The following classification will probably be found self-explanatory :

KINDS OF BONDS ¹		
Bonds {	Classified according to kind of security	Mortgage on real property Mortgage on other securities Mere prior claim on earnings
	Classified according to evidence of ownership and transfer	Registered Unregistered (coupon)
	Classified according to purpose of issue	Bridge bonds Construction bonds Car trust bonds Equipment bonds Extension bonds Ferry bonds Terminal bonds Improvement bonds Etc.
	Classified according to issuing concern	Government — state and national Municipal and county Railroad, express, and steamship companies Traction companies Gas, electric light, and water companies Bank and trust companies Investment companies Industrials Mining companies Miscellaneous

Minor types of business organization. — The three types of business organization which we have been considering are the ones which are most distinct and most clearly defined. There are, however, many other types, and all types shade off into one another. A fuller list, not a complete one, would run as follows :

- The individual firm
- The agency
- The general partnership
- The limited partnership
- The partnership association
- The joint stock company

¹ See F. A. Cleveland, *Classification and Description of Bonds*, Annals of the American Academy of Political and Social Science, XXX (1917), pp. 400-411.

- The corporation
 - corporations for general business purposes
 - corporations for public service
 - corporations for financial purposes
- The voting trust
- The combination (treated in Study XVII)
- The coöperative concern
- State and municipal enterprise

It is easy to see the circumstances under which these types are useful. Sometimes in a business enterprise the need of the management is not the securing of additional advice or of additional funds but of getting an increased amount of work done. In such a case the agency is likely to be used. The original concern (which may be any type of organization) simply employs other persons who have nothing to say about the business; who furnish no money; who merely represent the principal and bind him within the proper scope of their agency. Agency viewed in its functional aspect, therefore, may properly be called a multiplying device; it multiplies the number of persons who can carry on some or all of the activities of the original firm.

Sometimes the law of a state provides for the so-called limited partnership, the essential feature of which is that some of the partners have general or unlimited liability while others have limited liability. Speaking generally, the other features of the limited partnership are not different from those of the general partnership which we have already described.

The partnership association carries the same principle further. It also can exist only as a result of a permissive law. All its members may have limited liability. Furthermore, a system of managing officers may be set up and ownership in the business may even be transferred from person to person without terminating the life of the association. Details will of course vary according to the details of the law in different states. This type of organization exists in but few states.

The joint stock company is something of a cross between the

partnership and the corporation. In form of organization it is like the corporation, shares being issued and sold to a wide number of owners. These shares are transferable without the consent of other owners. The management is also like the corporation in that it is usually delegated to a board of directors. Liability, however, in the joint stock company is ordinarily unlimited liability. However, details vary according to the details of the permissive law.

Sometimes the voting stock of a corporation or at least a majority of it is placed in the hands of a few responsible men of high standing known as "trustees." These trustees are given instructions to use this voting power in a certain manner and for certain purposes. This device is sometimes used when a corporation is being formed in order to guarantee to minority stockholders that a certain policy will be followed. It is also used when a company is in financial straits and its creditors are able to force giving the management over to well-known, responsible men who will carry out a certain policy. It is known as the voting trust.

It is not easy to differentiate the coöperative concern from other forms of business enterprise. In its pure form, the coöperative company represents group action by workers. In "producer's coöperation" the workers contribute the capital, appoint a manager, and become themselves the "profit takers" of the business. In "consumer's coöperation" capital is generally furnished by a consuming group who get their "dividends" in the form of a periodical refund on purchases made, or in the form of lower prices on goods purchased. Some of these coöperative concerns have taken out charters and become corporations; some have themselves become great employers of labor in the usual "capitalistic" way. In the United States to-day the largest field of coöperative enterprise is not among workers, but among the farmers where various coöperative schemes of marketing, of manufacture of dairy products, of insurance, etc., are rather widely used. Perhaps it ought to be added that some persons call a state or municipal

enterprise, such as a municipally owned and operated water works system, a coöperative enterprise.

Sometimes the state or the municipality engages in enterprise itself. There are, for example, water supply systems, lighting systems, street railway systems, and in foreign countries, railroad, telegraph, and telephone systems, handled in this way. One group of people — the socialists — think it would be wise to have practically all our productive enterprises so handled. The usual way in which these state and municipal enterprises have been conducted in the United States is this: bonds have been issued to get the money to build the original plant, and the bondholders are of course paid interest on this money they have loaned to the government; this interest and the operating expenses are met out of the income of the business and, if necessary, out of taxes. The management of the business is in essence not far different from the management of a corporation. It is not as efficient probably, for too frequently men are given managing positions because they are good politicians rather than because they are good business managers. It is a pity that we have not yet learned, in America, to serve society as zealously and as efficiently as we serve ourselves.

All these types of business organization grow out of various needs of industrial society. They are simply devices for adapting and applying our productive resources to our needs. They are ways of assembling into a productive organization, and of managing after such assembly, land, labor, capital, and acquired knowledge.

PROBLEMS

1. Cite instances of individual firms in your town; of partnerships; of corporations.

2. If you were a business man and wished to borrow money from a bank, what information would the bank require before making the loan? If necessary, consult a local bank to get the answer to this question. (See p. 360.)

3. Draw up a list of the reasons which might induce an individual organizer to take a partner.

4. Set down the reasons which an individual organizer might have for hesitating to form a partnership.

5. Why should the man mentioned in the text set aside a sum to cover depreciation in figuring what his profits were? Why should he set aside a payment for his own labor?

6. Suppose a man of very ordinary means formed a partnership with a very wealthy person and that the partnership failed with a very large indebtedness. Would the wealthy person be likely to be held for more of the debts of the firm than the man of ordinary means?

7. Why might a banker be more willing to loan to a partnership than to an individual?

8. State in general the steps which are necessary to the formation of a corporation. Do people need to notify the state authorities when they form an ordinary general partnership? When they form a limited partnership?

9. Distinguish between a share in a corporation and a stock certificate. Distinguish between authorized capital stock and outstanding capital stock.

10. If you owned the majority of the stock of a corporation, could you direct its business policies? If you could, would you do so by voting on every action which was considered by the corporation?

11. Is continuity of life more certain in the individual firm, the partnership, or the corporation?

12. "A corporation is a legal individual." Explain. Is this also true of a partnership?

13. How does it come that a lawyer was consulted by the persons who contemplated forming a corporation? Why not a banker? Do you think that a banker might have been consulted under certain circumstances? On what matters would a banker's advice have been worth while?

14. Draw up in parallel columns a comparison of the chief characteristics of the individual firm, the partnership, and the corporation.

15. Suppose that a friend of yours who was forming a large corporation wished you to subscribe for a few shares of stock. It seemed a

good investment, but you were afraid that the larger stockholders might mismanage the company's affairs. Could you propose any form of organization which might protect your small interest?

16. Draw up a list of the reasons why larger funds can generally be brought together by a corporation than by a partnership. Do these large funds in the hands of a corporation enable it to exercise control over a large amount of social resources?

17. "In the corporation, ownership of the business has been divorced from its management with resultant bad effects on the management." In what sense are the two divorced? What are some of the resultant bad effects on the management?

18. "The corporation is an impersonal thing." Give as many reasons as you can for calling the corporation impersonal.

19. "We must do something to restore to the corporation and to the shareholders a sense of responsibility for their acts." Why should we do this? Why do they lack a sense of responsibility?

20. Why was it that the corporation did not become a common form of business organization until the last 75 years? What were the usual forms of organization prior to the coming in of the corporation? Have these forms disappeared?

21. Are larger dividends paid upon common or upon preferred stock? Which would you prefer to own, a share of common or of preferred stock in the same company?

22. A Chicago broker in offering stock to a prospective customer recently said, "This stock carries 25% 'back dividends.'" Explain what he meant.

23. The stock of a certain corporation has a par value of \$100. The preferred is quoted in market reports at $98\frac{1}{2}$, the common at 110. Explain.

24. "Stock certificates are evidences of ownership; bonds are evidences of indebtedness." What does this mean? What does it imply with respect to the management of a corporation?

25. A corporation has outstanding \$1,000,000 of 5% mortgage bonds, \$10,000,000 of 7% preferred stock, and \$10,000,000 of common stock. Gross annual earnings are \$11,950,000; total expenses for the year are \$9,900,000; depreciation amounts to 10% on a valuation of \$11,000,000. What is the amount available for distribution among

security owners and how will this amount be distributed among the holders of the different securities?

26. What is meant by saying that bonds are "safer" than stocks? Could the stocks of one company be "safer" than the bonds of another?

27. Explain why an agency may be called a multiplying device.

28. In what ways is the management of a municipal enterprise like the management of an ordinary corporation? Are there reasons why it is likely to be better? Are there reasons why it is likely to be worse?

29. Draw up an outline of the main points of this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: Selections 126, 127, 133, 134, 137, and 138.

Bureau of Education, *Lessons in Community and National Life*: Series A, Lesson A-21, Moulton, "Borrowing Capital for Modern Business."

By making use of any standard text in commercial law one or more additional lessons on the forms of business organization, especially the partnership, the corporation, and agency, may readily be inserted.

STUDY XVII

CONCENTRATED CONTROL, COMBINATIONS, AND MONOPOLIES

PURPOSES OF THIS STUDY :

1. To study the forms of business organization designed to extend and concentrate control.
2. To see some consequences of concentration, and society's action in the case.
3. To get an idea of the place of monopoly in our industrial society.

The corporation as a means of concentrating control. — In these days of large-scale enterprise business men frequently find it desirable to concentrate under one control power over great masses of our social resources. Sometimes they find it desirable in order to bring about economics of production; some of the cases of integration of industry discussed in Study XV were for this purpose. Sometimes they wish it in order to control the market more effectively, even to the extent of getting monopoly control; many of our trusts were formed with this motive. Sometimes they seek ways of reducing the risks of modern specialized business; nearly all our modern combinations have been thus influenced. From society's point of view such concentration of control has sometimes been beneficial and sometimes it has been quite harmful. In this chapter we shall study some of the forms of business enterprise which are used in bringing about this concentration. As one phase of the subject we shall deal with trusts. We must keep our minds clear on one point, however; concentration of control does not necessarily mean monopoly and trusts. Even if there were not a single trust to-day, much of the material in this chapter would still need to be presented.

The corporation form of business organization, though it is often used for operating small businesses, is one of our most important means of concentrating control over large masses of social resources. It is not merely that the corporation may itself be very large; power over a large corporation may be readily concentrated in a few hands. For example, a small *compact minority can control* a corporation when the holdings of stock are widely scattered and when affairs are going to the satisfaction of the stockholders. At first thought this seems strange; but imagine yourself as the owner of a few shares of some great successful corporation such as the Standard Oil Company. You would know very little about the affairs of the company; could have little judgment concerning what policies would be wise. You would accordingly either pay no attention at all to the annual meeting of the stockholders, which would be held at the offices of the company located perhaps thousands of miles from your home, or upon mere request you would give the people already in power your proxy (the right to vote your stock at the meeting). How ridiculously easy it may be for a small compact minority to control a corporation is seen from the following case. A certain corporation had fourteen thousand stockholders. Each of these was sent a notice of the annual meeting but only twelve attended. Of these twelve, only one asked to see the year's financial statement, and it developed later that he wanted to see it, because he hoped that it would assist him in drawing up a similar statement for the church of which he was a minister!

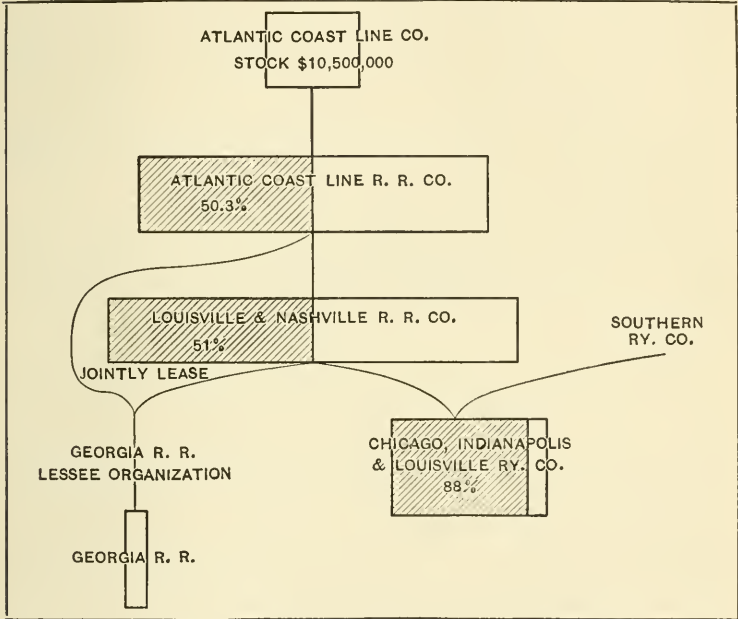
The charter of a corporation and the provisions governing the issue of its securities may be so drawn as to bring about great concentration of control within the corporation. One way is to issue very little common stock, and that little to very few persons, giving the common stock, however, the power to elect the board of directors, or at least the power to elect a majority of the board of directors. When so small an amount of common stock is issued, the money which the corporation needs, even though a large amount, can be secured either by issuing

and selling large quantities of preferred stock or by issuing and selling bonds or by both methods. In any case a corporation thus organized will be controlled by the common stockholders, for the preferred stockholders will have at best less voting power than the common stockholders, and bondholders ordinarily have no voting power. Power can readily be concentrated in a few hands when the greater part of the securities outstanding are preferred stocks and bonds, and only the common stock has voting power; for as we have seen, a minority of the voting stockholders may be able to control.

Another form of concentrated control is seen in what is called *control by a dominating spirit*. A few years ago Mr. E. H. Harriman was interested in building up and combining many of the railroads of the West. The stock of these roads was held by persons scattered all over the country. Most of them knew very little about railroading, but they had a great deal of confidence in Mr. Harriman and felt that if the whole management were left in his hands it would be successfully conducted. They accordingly readily gave him their proxies to such an extent that he had freedom to do almost as he pleased. In form these stockholders controlled the management of the companies concerned; in actual effect a different form of organization came into being — that of a dominating spirit. When several of these dominating spirits act in accord with one another, they are able to wield tremendous power.

The form or kind of corporation known as a *holding company* may be used to bring about great concentration of power in relatively few hands. As we know a corporation is a *person* as the law views the matter. This person, if the state in which it is incorporated has permitted that power in its charter, may invest in the securities of other corporations, just as you or I could. If it buys over 50 per cent of the voting stock of another corporation, it can certainly control this second corporation and can probably control through the ownership of much less. A holding company is a corporation organized for the purpose of holding or owning shares of other corporations.

How it works may be seen from the accompanying diagram of the Atlantic Coast Line Company (a holding corporation) and the corporations it controlled. It secured ownership of a little more than 50 per cent of the Atlantic Coast Line Railroad



THE ATLANTIC COAST LINE HOLDING COMPANY ¹

The persons who control the holding company can of course control the votes of the stock which it holds.

Company, which owned 51 per cent of the Louisville and Nashville Railroad Company, and these two, together with the Southern Railroad Company, controlled two other lines. An ownership of a little more than \$5,000,000 worth of capital stock in the holding company thus served to give control of a railway system over 11,000 miles in extent, with a capitalization of nearly three quarters of a billion dollars.

¹ Adapted from Interstate Commerce Commission, Special Report No. 1, *Intercorporate Relation of Railways in the United States, as of June 30, 1906*, pp. 15-16.

This form of business organization as a means of controlling large amounts of social resources is very common. In a form somewhat like the one we have described above it was used by the American Tobacco Company. This company had very little common stock and raised its great capital by large issues of preferred stock and bonds. The common stockholders, however, had control because of their voting power. In this case ten large stockholders controlled not less than 86 subsidiary companies operating in the tobacco business in various parts of the world. The total capitalization of these companies was nearly a half billion dollars.

It is, of course, only a step from the holding company which has a mere "controlling interest" in "its subsidiary companies" to the great giant corporation specifically organized to *purchase outright*, and thus "consolidate" a group of former competitors.

Another method of concentrating control through the corporate form of business organization is by *interlocking directorates*. This type is not difficult to understand. Two firms, for example, may be competing and each finds that the other is continually doing something to injure it. The directors of each decide that although they do not wish actually to combine, much can be gained if they act more harmoniously. Therefore each company elects to its own board of directors one or two men who are on the board of directors of the rival company. In this way each concern has some voice in directing the policy of the other and a management is effected in which each does the other less injury. Sometimes interlocking directorates extend not only between two companies but among a great number.

A report of a committee of one of our Houses of Congress made in 1913 stated that three of the largest banks in New York, Morgan & Company, the First National, and the National City Bank, through stockholding, voting trusts, interlocking directorates, and similar relations, exercised an important influence in controlling great masses of capital invested in

banking, railroads, producing and trading companies, and public utility corporations. A summary of the directorships held by the members of this group made it appear that firm members or directors in the institutions mentioned held:

“One hundred and eighteen directorships in 34 banks and trust companies having total resources of \$2,679,000,000 and total deposits of \$1,983,000,000.

“Thirty directorships in 10 insurance companies having total assets of \$2,293,000,000.

“One hundred and five directorships in 32 transportation systems having a total capitalization of \$11,784,000,000 and a total mileage (excluding express companies and steamship lines) of 150,200.

“Sixty-three directorships in 24 producing and trading corporations having a total capitalization of \$3,339,000,000.

“Twenty-five directorships in 12 public utility corporations having a total capitalization of \$2,150,000,000.

“In all, 341 directorships in 112 corporations having aggregate resources or capitalization of \$22,245,000,000.”¹

Other instruments of concentration. — While the corporation is one of the chief devices used by our business men who desire to concentrate control over large masses of social resources, it is by no means the only one. There is a whole series of other devices that accomplish concentration of control. Sometimes there are friendly understandings between supposed competitors. These are called “gentlemen’s agreements.” Other methods are trade associations, definite agreements and pools, control of patents, leases of property, and definite consolidation and amalgamation. For this definite consolidation and amalgamation the corporation is likely again to be called into play.

One of the most common things in business life is the tacit understanding, or “gentlemen’s agreement,” as to how men will act in certain contingencies. It is, of course, not always connected with schemes for concentration of control. For example, a gentlemen’s understanding between two retail

¹ Adapted from the Report of the Committee to Investigate the Concentration of Control of Money and Credit, February 28, 1913, pp. 86-89.

grocers that each will not speak disrespectfully of the other's business could hardly be called concentration of control. It is, however, used to accomplish concentration, and when the parties using it are a group of the dominating spirits we have referred to in another connection, the concentration may be very great. It may take the form of an agreement to divide the field, to limit the output, to pay certain prices for raw material, to grant only certain concessions to labor, to assume a certain attitude with respect to legislation and social control — to cite only a few of these "understandings."

A good illustration of the use of this device is found in the history of the steel business. In 1907 the officers of the United States Steel Corporation on various occasions invited the officers and directors of many of its competitors to join them at meetings where there could be a "full exchange of information as to the condition of various businesses represented and a frank interchange of views with regard to the business situation." These persons denied that plans were laid at these meetings to stifle competition or exercise monopoly control. We do not need to inquire concerning the truthfulness of this denial. The meetings were used to obtain understandings; they enabled the companies represented better to manage and better to control their steel plants in relation to each other. These meetings, which had their social as well as their business side, came to be known as the Gary dinners, and one occasionally still hears humorous references to the dinner party as a form of business organization.

A trade association is a group of business men, manufacturers, dealers, or producers, who have formed an organization. Generally this organization has only incidentally the purpose of concentrating control. The constitutions and by-laws of such associations are likely to say that they have been formed to advance the general welfare and prosperity of the industry. In practice, they concern themselves with a wide range of activities, such as coöperative advertising; standardized cost-accounting for the industry; standardization of materials,

processes, and products; establishment of credit bureaus and collection agencies; provision for general features of labor administration such as the establishment of employment bureaus and schemes of apprenticeship and trade education; supplying insurance to members; promoting state and federal legislation in the interest of their business; promoting organizations and methods to bring about better marketing facilities (especially in foreign trade); and occasionally the establishment of uniform terms of sale and even of price control — though this last activity must be carefully conducted lest federal law be violated. The influence of these associations is very great. Such organizations as the Chamber of Commerce of the United States of America, or the National Industrial Conference Board, which is made up of a group of large employers' associations, or the American Farm Bureau Federation (and one might, without stretching matters unduly, include the American Federation of Labor), profoundly influence the actions of their members, and a very real concentration of control rests with their leading spirits.

Gentlemen's agreements and trade associations are after all rather loose and somewhat vague methods of concentrating control. Definite agreements (sometimes they are formal contracts) and pools are, on the other hand, definite devices for accomplishing this result. They assume several forms, and have at one time or another been used quite considerably by manufacturing and selling industries, and by our railroads. There is, for example, the *traffic pool* in which the various competitors agree on the volume of business which shall be done by each, and if necessary divert business from one establishment to another in order to maintain the volumes agreed upon. Sometimes they have given special inducements (which we have come to regard as generally improper) to some concern if it will act as the "evener" in making this adjustment. The Chicago packers were once a famous evener for the competing railroads to the east. In *money pools*, the earnings, no matter by what company earned, are pooled, and each gets its pre-

viously agreed upon share of these earnings. In *divisions of territory* spheres of influence are marked out, — one company to have undisputed sway in a certain territory, a different company to control in another territory. Or there may be a *price-fixing agreement*, either with or without some penalty being imposed upon a firm which violates the agreement. A survey of these various forms of definite agreements and pools will show that they can be used, and indeed upon occasion they have been used, to stifle competition and bring about monopoly control. As we shall see later, such use of this device is forbidden. It does not follow, however, that it is always easy to catch the offender.

Another device which has been used to accomplish concentration of control is control of patents. In its simplest form, it is illustrated when some basic patent is of such vital importance that a concern which is unable to use it cannot hope to be a successful competitor, and the firm which can use it occupies more and more of the field. The more complex form, and one which our present laws do not sanction, is found where a group of large firms assign their patents to some company controlled by them, and this company then permits the use of these patents only under conditions which will not be harmful to the original firms.

The lease is another scheme. It is quite common for one concern to lease part or all of its property to another. During the term of the lease, control is of course vested in the lessee. It need hardly be pointed out that this device is used by very small concerns as well as by the larger ones.

There ought to be mentioned, because of the historical interest involved, the original trust, a device no longer used because the courts have declared it illegal. This scheme was started in 1882 by the Standard Oil Trust. The idea of a trust or trusteeship is an old one. Men have for centuries put property in trust with some responsible person or institution, when they wished it wisely administered after their death. Every one has heard of the heirs of rich men whose property is held in

trust by an individual or by a trust company. So also are funds for endowed institutions — universities, churches, hospitals and libraries, put in trust and controlled by trustees. The use of this trustee idea was adopted by the Standard Oil Company. The stockholders of the different companies entering the combination “signed over” their stock in trust (hence the name) to a board of trustees, giving over also the right to demand the return of their stock. Thus the trustees had power to control all of the several different corporations which entered the combination. As trustees of all the companies, it is easy to see that their interests lay in eliminating competition and directing the whole affair as a monopoly. This is the beginning of the term “trust,” which we now use in a popular sense to mean any organization which is large enough substantially to control the field of business in which it operates.

During the period of the great war, the United States Government passed a law known as the Webb bill which permitted individual companies to combine and take coöperative action for purposes of exporting. Congress apparently in passing this law believed that the United States could push its trade abroad better by means of combinations, and that any losses would be more than offset by the gains of such a scheme. Then, too, during the war period the United States Government did much to encourage many forms of business to act more or less in unison, in order that the productive forces of the country could be better controlled for the purposes of winning the war. During this period practically all of the suits which were pending in the United States courts against so-called trusts were not pushed. The government’s attitude during the war period was altogether less aggressive toward monopoly than it had been prior to the war.

Motives behind concentration of control and its consequences.

— Having seen some of the methods used in concentrating control, let us now see that these methods have been used to bring about combinations or trusts, and what some of the consequences of this movement have been.

Some of the leading motives for concentration of control have already been discussed in our study on the size of maximum efficiency of the business unit (Study XV). The reader who does not have fairly clearly in mind the advantages possessed by the large-scale enterprise (*a*) through reduction of production costs, (*b*) through better and cheaper methods of bearing risk, (*c*) through savings and increased efficiency in administration, and (*d*) through better marketing and financial facilities, would do well to review that material, for the material we are now to take up is very closely connected with it. It ought to be remembered also that the social environment was such as to make possible the development of these large-scale enterprises.

Concentration may readily lead to the trust. — And now we are to take one step farther. To the various reasons already enumerated for the emergence of large-scale enterprise we must add another powerful factor, the desire for monopoly gains, and still another, the evils of cutthroat competition, and we have the trust.

We have seen repeatedly that most of the advantages of large-scale enterprise can be secured without the existence of monopoly. That is quite true. But now notice that if a concern has monopoly (which does not necessarily mean 100 per cent control, for 60 per cent or even less is sometimes "effective"), it has the advantages of large-scale enterprise, and it has also a *plus*. The plus includes (because it is the only significant firm in its field) stronger bargaining position with the suppliers of raw materials, with labor, and with consumers; greater ability to predict prices, output, etc., and thus greater control over risks. Men engaged in business for gain naturally desired to get this "plus." We must remember too, that in the last quarter of the nineteenth century production in many kinds of manufactured goods was increasing more rapidly than was the market (see p. 118) so that men were fighting for markets at the very time when the presence of indirect costs tended to make their competition of the cutthroat variety. Especially significant were the conditions arising after the Civil

War. The government had for war purposes been buying large quantities of goods and many great concerns had grown up rapidly in an effort to supply these goods. Also, during the Civil War period prices had been high and this had encouraged the growth of many factories and other productive organizations. With the conclusion of the war, government demands slackened and prices fell, making profits for all of these concerns more difficult to secure. A result of this was a strong urge toward combination and monopoly. It is not very surprising that the gain spirit impelled men to form combinations.

Because of this general background situation, there began in the 1870's the movement known as the "trust movement," which means, of course, the movement for the formation of enterprises which had such great concentration of control as practically to constitute monopoly in certain lines. The most active period in the formation of trusts was in the few years immediately following 1898. But they have been with us in rather large numbers throughout the entire generation.

Trusts have been vigorously opposed. — They have by no means been received by the people with open arms. They have been from the first regarded with suspicion and hostility, and their later history has not been such as to cause this suspicion and hostility to wane. The charges that have been made against the trusts and for that matter are still made against them may be summed up as follows: (1) It is urged that in their desire for monopoly gains they manipulate prices. Since they are in effect the sole market for the producer of raw materials they give him less than he would get in a régime of free competition; since they are in effect the sole producer, they charge the consumer more than he would pay in a competitive régime, for they fix the price, under the so-called law of monopoly profits, at the point at which they will make the greatest net gain. (2) It is urged that they have too frequently violated the moral if not the legal rights of the minority stockholders; that "insiders" have engaged in manipulation of corporate securities; and that investors have suffered for these

and for other reasons. These are, of course, really problems in corporation finance; they might equally well be true of a small concern. The magnitude of corporate securities in the trust, however, called particular attention to its operations. (3) It is urged that they have had unfortunate consequences for the worker. Attention has been called not only to the way in which they have increased impersonal relations between employer and worker, but also to the fact that their size and monopoly position give them a strong bargaining position with respect to labor, — give them here, also, a control of prices. (4) It is urged that these monopoly gains are concentrated in relatively few hands, and that this tends to bring about a more and more unequal distribution of wealth in our society — a condition which ought not to be tolerated in a democracy which demands for its citizens equality of opportunity. (5) Certain unfavorable general social consequences are also charged against them. It is said that they have been corrupting our political life through the bribing of legislators and judges; that they set low standards of business morality by emphasizing quick gains, unscrupulously secured, rather than gains flowing from rendering real service to man; that they are, in brief, actually the monsters referred to in our discussion of the corporation — huge organizations with great power and little sense of responsibility. It is charged also that poor products have been made by these great organizations. (6) The use of unfair methods in harassing and destroying competitors has been one of the most serious charges made against the trusts. Prices, it is charged, have been cut in certain localities merely to destroy a competitor and, without giving any gain to the consumer, rebates have been given. The public have been made to believe they were dealing with competitors when in reality they were dealing with the trusts through the creation of “bogus” independents, that is, business houses that deceitfully appeared to be separate from the trust. Lawsuits have been instituted against competitors merely to involve them in expense and delay, especially in the use of

patents. These are but a few of the methods which competitors have charged against the trusts as unfair competition. (7) The trusts, it is argued, have checked progress. Competition is the chief method upon which we rely to weed out the less efficient business houses and business methods and to establish the more efficient ones. In so far as the trusts have checked competition, they have, it is argued, stultified our social method of improvement. (8) Finally, it is urged that in our manufacturing and selling businesses at least, there is not good reason for the point of view of society for tolerating such monopolies; that we may have all the advantages of large-scale enterprise without allowing monopoly control.

The mere size of these organizations gives some people pause. Says Carver :¹

“It is sometimes asserted that the mere size of a corporation should not affect its standing before the law, or its rights and obligations. In the sense in which this assertion is probably intended, it is correct; but if it is intended to imply that a corporation requires no more legal control when it is large than when it is small, it is untrue. The larger the corporation, the greater is its power, either for good or for evil, and that makes it especially important that its power be under control . . .

“If I may use a homely illustration, I will take the common house cat, whose diminutive size makes her a safe inmate of our household in spite of her playful disposition and her liking for animal food. If, without the slightest change of character or disposition, she were suddenly enlarged to the dimensions of a tiger, we should at least want her to be muzzled and to have her claws trimmed, whereas if she were to assume the dimensions of a mastodon, I doubt if any of us would want to live in the same house with her. And it would be useless to argue that her nature had not changed, that she was just as amiable as ever, and no more carnivorous than she always had been. Nor would it convince us to be told that her productivity had greatly increased and that she could now catch more mice in a minute than she formerly could in a week. We should be afraid lest, in a playful mood, she might set a paw upon us, to the detriment of our epidermis, or that in her large-scale mouse-catching she might not always discriminate between us and mice.”

¹ T. N. Carver, *Essays in Social Justice*, pp. 329-332.

While minor flaws may be picked here and there in this arraignment of business monopoly, it must be said that the defenders of monopoly have never been able to make an answer satisfactory to expert students, or to the public. It is generally believed that most of the trusts or monopolies which we have had in our ordinary manufacturing and marketing industries cannot be successfully defended on the ground of service rendered society. In such industries large-scale production frequently seems worth while; monopoly seldom, if ever, seems so, — certainly not unregulated monopoly.

Remedial action has taken different forms. — But if the position of the monopolist in manufacturing and marketing industries has been weak in logic and in service rendered society, it has been strong in its practical hold on the situation. From the very first war has been waged against the trust, but the war still continues and it is by no means certain that the outcome up to the present time has been better than a draw for the public.

In the earlier stages of the contest there was a fairly general acceptance of the doctrine of “regulation by the ax.” In essence this doctrine is: monopoly is bad, monopoly should be exterminated and competition restored. This doctrine moved our national legislators when in 1887 they forbade the railroads to form pools, ordered them to be ruled by competition, and set up the Interstate Commerce Commission as a regulating body. It also moved them to pass the Sherman Anti-trust Law of 1890, which declared:

“1. Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several states, or with foreign nations [includes territories and District of Columbia], is hereby declared to be illegal. Every person who shall make any such contract, or engage in any such combination or conspiracy, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

"2. Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons to monopolize, any part of the trade or commerce among the several states, or with foreign nations, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

"8. That the word 'person' or 'persons' wherever used in this act, shall be deemed to include corporations and associations existing under or authorized by the laws of either the United States, the laws of any of the territories, the laws of any state, or the laws of any foreign country."¹

Its influence has been responsible for quite similar action on the part of many of our state legislatures.

"Regulation by the ax" has not, however, proved tremendously effective although it still has considerable vogue. The trouble with it is that action can be taken only after the trust has been formed. The offender is then haled before the courts, the trial is likely to last years, and even if the trust is ordered to dissolve, it is likely to adopt some other form of combination and the whole tiresome process must be gone through again. All of this would be a good deal like locking the stable door after the horse has been stolen were it not for the fact that the door never seems to get really locked.

In recent years we have been trying other forms of control which we hope may prove to be more useful. While still "regulating by the ax" when a proper case arises for its use, we seem to be beginning to work more on the causes leading to monopoly rather than being content merely with using the ax on monopoly after it has emerged. Examples of this newer movement are found in the so-called Seven Sisters of New Jersey, which were seven laws passed by that state in 1913; in the Federal Trade Commission act of 1914 and the Clayton Anti-trust Act of the Federal Government of the same year.

¹ U. S. Comp. Stat. Ann. Vol. 8, Sec. 8820, 8821, and 8830. Also Fed. Stat. Ann. Second edition, Vol. 9, pp. 644, 687, and 726.

In the new movement there is a tendency to turn to laws forbidding discriminations between persons or communities by selling to one at a lower rate than to another; to laws protecting minority stockholders and regulating the issuance of corporate securities, — applicable equally to large and to small corporations; to laws stating in general terms that no one has a right to use unfair methods of competition and then setting up an investigating and administering body to define unfair methods, to gather information concerning improper practices, to make public its findings, and to bring suit against the offender if necessary; to laws forbidding the holding of the securities of one corporation by another when such holding tends to stifle competition, or forbidding interlocking directorates under similar conditions. We are experimenting also with laws which put some limitations on the rights of patent ownership, laying down regulations for the conditions under which they may lease their patent rights in such a way as to control the manufacture of a product widely and for a long period of time. One of the most interesting methods of the newer viewpoint is the Federal Trade Commission. This body of five members is appointed by the President and has broad powers to gather information about business practices and to make rulings that will keep competition operative. It is too early to predict the outcome of this newer movement. We can only say that it looks more promising than attempts merely to exterminate.

While it certainly does not deserve more than mere mention, it ought to be said that a few people believe in a "let alone policy" for the trusts. These optimists believe that little or no action by society is necessary in the case. Few accept this position. There is growing into our attitude toward the trusts a very clear notion that some trusts under certain conditions are reasonable and not undesirable. It is quite certain that the attitude of the general public is less severe toward the trusts than it was twenty or even ten years ago. Perhaps the best illustration of this changed viewpoint is in the case above mentioned concerning the Webb Law and also in laws

which permit shipping companies to combine and act as monopolies under certain conditions.

Various kinds of monopoly and their control. — The whole problem of monopolies in modern industry is so complex and puzzling that it may help us think more clearly if we make a classification of the outstanding kinds of monopoly to-day. Such a classification (which will be explained below) might be made as follows :

Monopolies	{	Legal monopolies	
		<ul style="list-style-type: none"> a. Those concerns given a monopoly apparently on the theory that it is socially wise to protect a private interest. Examples are : 	<ul style="list-style-type: none"> Trade marks Patents Copyright Business monopolies by state action
		<ul style="list-style-type: none"> b. Those concerns given a monopoly (usually regulated) apparently on the theory that they are vested with a public interest. Examples are : 	<ul style="list-style-type: none"> Water, gas, electricity, telegraph, and telephone companies Street railways Railroads Wharves, docks
		Natural resource monopolies	
		<ul style="list-style-type: none"> a. Those depending on physical limitations in supply of goods, such as : 	<ul style="list-style-type: none"> Diamond mines of Africa Anthracite coal in the United States Agricultural monopolies such as that of the raisin growers
		“Capitalistic” monopolies found :	
		<ul style="list-style-type: none"> a. Those depending on the economies of large-scale production b. Those depending on agreements c. Those depending on special favors, such as rebates d. Those depending on unfair methods of competition, etc. 	<ul style="list-style-type: none"> In extractive industries In manufacturing In finance In marketing

It will be noticed that the legal monopolies are those which are definitely authorized and encouraged by society on the ground that monopoly is a useful device in such cases. Authors are to be encouraged to produce useful ideas by copyright laws giving them monopoly control of the publication of those ideas for a period of years ; inventors are to be similarly encouraged for a similar reason ; trade marks presumably are to be protected on the ground that they are useful antidotes to modern any-

mous production; some European governments authorize monopolistic trade in certain lines, such as the tobacco monopoly in France, either as a means of regulating consumption or as a means of getting revenue. But there is another type of monopoly authorized by law. We find the best examples of this type in those activities that we think of as public service companies — those concerns that we have come to feel are for public rather than private use.

It is generally believed that monopolies in certain fields of public service — regulated monopolies, of course — give us better service than competitive industry. The reasons for this belief vary according to the case. Sometimes, it is because of the physical difficulty involved in putting in more than one plant for a given purpose; our streets would not have sufficient space for numbers of lines of railway track, gas mains, or water systems. Sometimes, it is because the service rendered by these public utilities can be given only to the consumers who have instruments directly connected with the central plant (the telephone is a good illustration) and better service can be rendered if all are connected with the same plant.

But of course these public utility monopolies ought not to be permitted to "run wild." They ought to be regulated. In the main, we use in the United States two types of regulation for such industries. Sometimes we control them by regulating or fixing the profits they are permitted to make, or the prices they are permitted to charge. This is not an easy thing to do. It involves very careful accounting and very delicate supervision of industries having such heavy indirect costs. Sometimes we control them by having them owned and operated by the municipality or state. Even this is not as simple as it sounds. Our standards of public administration in this country are not very high and such publicly owned industries are by no means always efficiently managed.

The second kind of monopoly, natural monopoly, is found when the physical supply of certain goods or the raw materials for making these goods is limited, and in such a case it is

relatively easy for some person or group to control output. In the outline, page 309, it is suggested that the Kimberley Diamond mines in Africa furnish an example of such a monopoly. The limited area in which anthracite coal could be mined in the United States also furnished the basis for an attempted monopoly in that field. Raisin growers in California are in such a naturally strong position as to have a monopoly. At one time there were very few known beds of asphalt in the world and a few men secured control of these and held a monopoly.

The third group of monopolies are capitalistic monopolies. Capitalistic monopolies sometimes result from the concentration of large amounts of capital — so large that competitors may be bought out. Special privilege, unfair competition, or agreements among nominal competitors may also lead to monopolies which are classed under this head. As we have seen, we are somewhat doubtful whether they ought to be permitted at all, but we are not at all doubtful concerning the difficulty either of eliminating them or of properly regulating them. We want to have in our industries business units of the most efficient size; but we want to prevent their becoming monsters with great power and little sense of responsibility. If they are to continue among us, we must find some way of getting rid of the evils which up to the present time have been connected with them. Society has discovered powerful means, such as the machine and large-scale industry, of producing goods. But these methods have brought us new problems of control. We are like the fisherman who pulled from the sea a vessel out of which came a genie capable of doing him great good or evil. Can we control the genie that has come out of the vessel we have opened?

PROBLEMS

1. Define or explain: (1) the voting trust, (2) limited voting, (3) holding company, (4) trusts, (5) monopoly, (6) pool, (7) interlocking directorates, (8) amalgamation, (9) Interstate Commerce Commission, (10) Federal Trade Commission.

2. "The corporation has made possible a centralization of power." Show four ways in which the corporation can be used to concentrate control.

3. "Very frequently a solid block of 20% of the stock of a corporation will give effective control." How can this be true? Would it be true under a system of limited voting?

4. Explain in detail two processes by which the holders of ten million dollars' worth of securities might be able to control one hundred million dollars' worth.

5. "Concentration of control can be brought about through the manipulation of securities." Explain.

6. What is meant by saying that the relationships in a corporation have caused the stockholder to have a small sense of responsibility?

7. Why should we be concerned with preventing certain kinds of interlocking directorates? Should we try to prevent all interlocking directorates?

8. Make a list of the various instruments of concentration of control. What ones of these may be used without any idea of securing monopoly?

9. The A-B-C Corporation is a holding company. It has ten thousand shares of preferred stock and two thousand shares of common stock. The common stock has all the voting power. This company owns a controlling interest in ten other corporations. If the common stock of the holding company is selling for \$100 a share, how much money would you need to secure control of the ten corporations?

10. Can you learn of any employers' associations in your town? If there are any, do they serve in any way to concentrate control? Do they serve other purposes also?

11. Explain in detail how control of patents might serve to give concentration of control.

12. Review the advantages of large-scale production (see p. 262 and Problem 17 on p. 266). Consider whether in each case *monopoly* is necessary to secure that particular advantage.

13. "Large-scale production tends strongly to pass over into monopoly." Why or why not?

14. "Monopoly is merely the final stage of a sequence which started with the introduction of machinery." What does this mean? Does

there appear to be any truth in the statement? What is the relation of indirect costs to the trust movement?

15. "The emergence of our modern trust is closely connected with the fact that in our generation the production of certain goods has been outrunning the market." What does this mean?

16. What effect might the abolition of proxy voting have upon concentration of control? What would be the effect of limited voting?

17. In 1896 the following situation existed:

COMPANY	COMMON STOCK	DIVIDENDS
A	\$3,000,000	10 per cent
B	\$2,000,000	8 per cent
C	\$1,000,000	10 per cent

On January 1, 1897, a holding company, D, absorbs all their stock, and in 1897 D gets, in addition to the former earnings \$500,000 monopoly profits, and \$100,000 by saving the wastes of competition. What dividends could D pay if its capital stock were \$6,000,000?

18. Large-scale production has often been beneficial to society but it has sometimes led to concentration of control which has injured society. Would it be a satisfactory solution of this problem to pass a law forbidding large-scale types of business organization?

19. What bearing if any has accounting upon the regulation of public utilities? Do you think of accounting as being an instrument which society may use in controlling business activity?

20. "It is a great mistake to confuse the corporation problem with the trust problem." Name some matters which you would consider parts of the corporation problem. Name some which you would consider parts of the trust problem.

21. Why should the regulation of capitalistic monopolies be regarded as among the most critical problems of the day?

22. Just why do the creation of the Federal Trade Commission, the passage of the Clayton Act, and the passage of the Seven Sisters of New Jersey seem more promising ways of controlling the trust than attempts to exterminate?

23. "The investigating commission such as the Federal Trade Commission is a new institution that has come into existence to aid in controlling the new types of large-scale business." Explain.

24. "The trusts are a result of natural growth." "The trusts are a result of artificial conditions." With which of these quotations do you agree? Are both partly true?

25. Give reasons for and against having competing telephone companies and competing gas companies in the same city.

26. Make a list of the ways in which a big combination like the United States Steel Corporation might be of benefit to society. Of the ways in which it might be harmful.

27. Mention the names of a number of business organizers who have concentrated in their own hands large control of capital.

28. It is sometimes argued that great industries ought to be taken over by the government. What does it seem to you would be the advantages and disadvantages of such a move in the case of the steel industry?

29. "The formation of trusts was inevitable. The financial machinery of society, especially the corporation, made possible the assembling of large masses of capital. The expansion of markets and machine industry made such assembling wise. The pressure of indirect costs made competition intolerable. The desire for monopoly profits was the match which set the powder off." Explain the "why" of each statement.

30. Draw up an outline of the main points of this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 709-714, Selections 275-308.

Taussig, *Principles of Economics*: Revised Edition, Vol. II, Chap. 63.

Ely, *Outlines of Economics*: Revised Edition, Chap. 13.

Bureau of Education, *Lessons in Community and National Life*:

Series A, Lesson A-25, Wright, "The Integration of the Greatest Manufacturing Concern in the United States."

Lesson A-26, Clark, "Concentration of Control in the Railroad Industry."

STUDY XVIII

THE GUIDANCE OF ECONOMIC ACTIVITY

PURPOSES OF THIS STUDY :

1. To see the importance of correctly apportioning our social resources to our various needs.
2. To see the work of certain agencies in effecting apportionment.

Balance in the coöperation of specialists is very important. — Let us return to the fact that our society is made up of specialists. Most of us specialize in the making of some one good or small part of a good, or in the rendering of some one service or part of a service. Almost no one produces all or even many of the things he consumes. None the less, our wants are met — inadequately enough, it may be, but met nevertheless. The multitudinous specialists are welded together, by authority and through exchange, into a huge want-gratifying machine. And the machine works.

Let us now go a step farther and inquire into a problem which we have heretofore passed by with little attention. How does it come about that this want-gratifying machine turns out the "right" amounts of the various goods and services we desire? What brings about balance and proportion in the coöperation of modern specialists?

Balance is highly desirable, even absolutely essential, in our coöperation of specialists. If our productive energy, — land, labor, capital, acquired knowledge — were applied in such an unbalanced way that it was all used in producing clothes, we should find ourselves short of food and shoes and countless other commodities and services. If we should use all of our productive resources in producing meat, watches, automobiles, and battle-

ships, we should find ourselves lacking in physicians' services, books, houses, and all the other multitudinous means of gratifying our varied wants. In actual fact, we seldom find the things we want existing in exactly the right balance, as we see the matter. Many of us feel that it would have been better to have produced fewer pleasure cars and more medical care, food, and clothing. But matters could be so much worse — so much more poorly balanced — that we have come to say that the various things we desire are available for us in roughly the "right" amounts. In some manner this coöperation of ours, which is carried out by authority and through exchange, is *regulated or guided*. In some manner our productive resources are apportioned so that we have in roughly appropriate quantities the various kinds of commodities and services we desire.

Productive resources must be apportioned in any society. — This necessity of guiding economic activity, — of apportioning productive resources, — is not peculiar to our society. It would be present in the communistic society which we imagined might be formed if our class were shipwrecked on an island (see p. 17). It was present on the medieval manor: there the apportioning was carried on largely by custom, — that is, — the *habitual* or *customary* things were made or grown or done over and over again, year in and year out. The need of apportionment is present even in the case of an isolated man. Indeed, it may help us see more clearly the problem which faces our society if we ask ourselves how the pioneer guided his activities. Daniel Boone, for example, gave part of his time to hunting, part to fishing, part to farming, part to making new tools or to repairing and improving his old equipment. The guidance or apportionment of his activities might be diagrammed as on the facing page.

This problem of the guidance of economic activity was not a very difficult one under the simple conditions of frontier life. Daniel Boone did not necessarily give very much conscious thought to the apportionment of his productive resources. To a considerable extent he did "as the spirit moved him." When

he did give conscious thought to the problem, a rough and ready solution was fairly quickly arrived at. This was true partly because he had only his tastes and preferences to consult; and so he had only to "know his own mind." It was true in part because the productive resources which were to be apportioned were all under his own control (did not belong to any one else) and were simple, visible, tangible, and easily understood. It was not hard for him to see when his weapons or tools were wearing out; not hard for him to decide how much of his resources should be spent in maintaining and improving his capital goods as opposed to how much should be spent in getting the narrow range of consumer's goods in which he was interested; not hard for him to carry out his decisions, since he himself controlled all the means of carrying them out.

Total amount of productive resources of the pioneer

- natural resources
- plow, wagon, rifle, and other capital goods
- labor
- acquired knowledge such as knowledge of farming methods, etc.

had to be apportioned between

1. Getting goods for immediate consumption, which had to be apportioned among the following: How much game? How much corn? How much fish? How much of other things?
2. Keeping up and improving his productive resources so as to get consumption goods in later years. This involved such apportionment as the following: How much to building wagons? to building bridges? to clearing land? to repairing his plow? to planning new methods of work? to other things?

The apportionment of productive resources a complex problem in our society. — The situation in our complex society is very different. In our "great coöperation" there are hundreds of thousands of people making use of hundreds of thousands of

commodities and services. The desires of these people are continually shifting. We want new things or less of the old ones. The specialized producer in such a society, when deciding what to produce, has not the simple task of "knowing his own mind," but the very difficult task of knowing the minds of these thousands. Furthermore, the productive resources which are to be apportioned in our society are not under the control of any one person; they are controlled or owned by thousands of persons and of course this complicates the problem of apportionment.

Again, our productive resources are no longer simple and easily understood. Modern technological industry uses very complex instruments such as great factories, each with scores of departments and complex processes involving chemistry, physics, and other sciences which only specialized experts can understand and operate. Then, too, the modern specialist does his work in a business environment in which he depends upon many other specialists (Study IX). He is only one of millions; a decision of his is only one of billions. Finally, he is by no means as free to do what he pleases, as was Daniel Boone. He operates in a society which has laid down rules of the game governing his actions. Truly, a correct apportionment of productive resources is a much more complex task in our society than it was with the frontiersman.

We must not get confused because of the complexity of the problem. It is after all the very same problem which confronted Daniel Boone. In our society it has to be determined in some way or other (1) how much of our available productive resources shall be devoted to making goods for immediate consumption; (2) how much shall be devoted to the making of *each* consumption good; (3) how much shall be devoted to maintaining and improving our productive resources; (4) how much shall be devoted to maintaining and improving *each* productive resource. We must not overlook the importance of maintaining and improving our productive resources. If we do not take care of them, continuous cropping may reduce the quality of our soil resources; our present supply of tools, machines, and

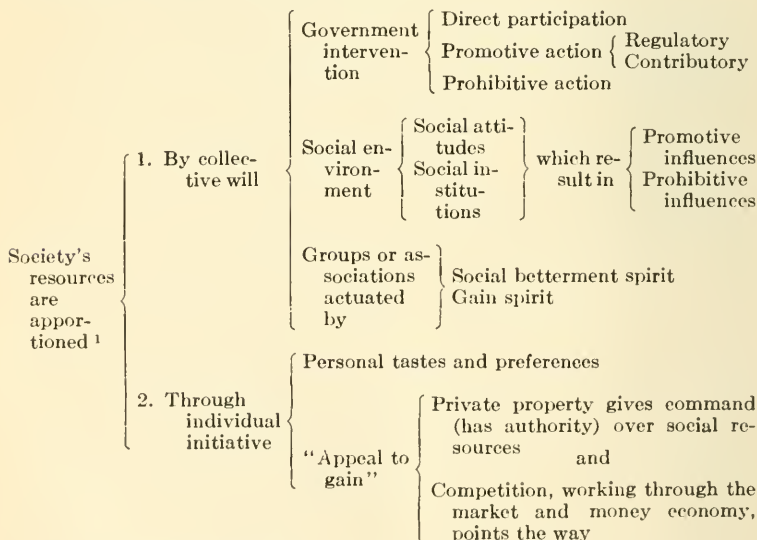
other capital goods will certainly wear out; our labor power may easily become less efficient if our workers are not properly fed, clothed, and educated; our sum of knowledge may fail to increase or may even fall into decay. If these things were happening, we might be able to turn out as many consumers' goods as formerly for a few months, but in the not distant future their supply would certainly be greatly reduced.

Total amount of society's productive resources at a given time — natural resources — capital goods — labor — acquired knowledge	must be appor- tioned between
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1. Getting goods (wealth and services) for immediate consumption. This involves getting the "right" amounts of *each* good. Descriptively speaking, this is done through apportioning society's productive resources among the specialized business units which are producing the various goods.
2. Keeping up and improving our productive resources — land, labor, capital, and organization — so that we may have consumers' goods in later years. This involves giving "correct" emphasis to the maintenance and improvement of *each* productive resource. Descriptively speaking, some of our producing units, such as an engine works, a plow factory, or an agricultural college devote themselves entirely to keeping up and improving our productive resources. Furthermore, nearly every business unit gives some attention to the problem in its "repair," "maintenance," and "betterment" work.

The diagram on the preceding page sketches the character of the problem in our modern society. If you will compare it with the diagram showing the problem which confronted Daniel Boone, you will find that the two diagrams deal with exactly the same things in different words.

Upon whom — upon what agencies — do we rely for the performance of this stupendous task of guiding economic activity; of apportioning our productive resources? You will not be surprised to be told that the answer to this question, if fully made, would involve an analysis of the entire economic structure of society. The whole story cannot be told at this time. It can merely be sketched. The sketch can be more easily understood if you will look through the following diagram, trying at this time merely to guess at the meaning of the statements you do not understand, and then keep turning back to the diagram as the discussion proceeds. By the end of the chapter the diagram will be full of meaning to you.



¹ The reader should notice that this diagram is in part a classification of agencies and in part a classification of motives.

Collective will strong in the guidance of economic activity. — We have not used the expression “collective will” before, but we have used the idea it contains many times. It means merely social control arising out of the “will” of some group, whether that group be large or small. We shall study social control in more detail in later chapters, but an outline of the way it affects the apportionment of our productive resources must be taken up at this point.

In some cases this collective will — this social control — takes the form of government intervention which, as shown in the diagram, may mean (1) direct participation, or (2) promotive action, or (3) prohibitive action. Our various governments, municipal, state, and federal, participate directly in economic activities — and, of course, they use social resources in doing so — in many ways. Some of our municipal governments operate lighting, water, and railway systems; our states have built roads, railroads, and canals; our federal government operates arsenals and navy yards and has built the Panama Canal. These are but a few samples of direct governmental work in want-gratification. You may know that there is one group of our people — the socialists — who think that we should have a better economic system if the government took over practically all production. They think that the government ought to do much more than it now does of the work of apportioning our productive resources.

In addition to direct participation in some activities, government promotes or encourages various others. Sometimes it does this by contributing money to certain industries. Examples of this are to be found in large payments for carrying mail as a means of developing shipping lines, and in bounties, given for the production of sugar. More often, however, the promotive action of government takes the form of regulation. There is almost no end to the illustrations of this kind of governmental activity. There are tariff laws discouraging the importation of certain goods in order to encourage their production at home; laws regulating the use of mineral lands in our public domain;

laws promoting trade and commerce by permitting railroads and other public utilities to take private property even when the owner does not wish them to do so ; laws encouraging the formation of associations to develop foreign trade ; laws showing how contracts which have been entered into may be enforced. Your own information will supply scores of other illustrations, and you can readily see that these laws greatly affect the development of enterprises and the apportionment of our productive resources (land, labor, capital, and acquired knowledge) among the enterprises of the community.

Then, too, there are cases of prohibitive action by governments which distinctly affect the guidance of economic activity and the use of our resources. Child labor must not be used ; women must not work more than a stated number of hours ; excessive rates of interest must not be charged ; people must not engage in robbery, in counterfeiting, in gambling, in improper purveying of drugs, in manufacturing or selling of alcoholic liquors ; during a war there must be no trading with the enemy, and no wasteful consumption of food.

The way our taxes are collected and used frequently gives us interesting illustrations of prohibitive and promotive activity combined. Heavy taxes may be put on luxuries and amusements, and these taxes tend to discourage the consumption of such goods and therefore tend to discourage having society's resources used in making them. The government may use the money which comes in from such taxation to make contributions to other industries, or to maintain government bureaus which carry on various promotive and prohibitive activities. Taxation thus becomes an instrument for the guidance of economic activity.

As is shown in our diagram, action by organized government is only one form of collective action in the guidance of economic activity. There is also the guidance which comes from social attitudes and social institutions — constituent elements of our social environment. "Social attitudes" is a term covering many things. For example, there is public opinion concerning

the propriety of certain enterprises. Some enterprises are "reputable," others are disreputable. Men and governments are strongly influenced by such considerations when determining upon a course of action. Then, too, there are habit and custom, which tend to cause men to continue in enterprises upon which they have once entered and tend to cause productive resources to be used in habitual or customary ways. A certain method of doing things is "customary"; it is the "usual way"; "no one thinks of doing differently" and if he does, he may be restrained by discontent among his workers or his customers. In South America, for example, business negotiations are carried on in leisurely, ceremonial ways. It would not be profitable for our merchants to try to sell goods in South America by the use of our more hurried North American ways, nor would it be profitable for our merchants to try to introduce South American methods into our country.

As examples of social institutions there would occur to every one such things as our banking system, our schools, our libraries, and our churches. A business man finds his actions largely influenced by these and similar institutions. If, for example, bankers doubt the wisdom of a certain form of business enterprise, that enterprise cannot readily get funds. This is, of course, only another way of saying that the bankers refuse to encourage the movement of society's resources into that business. If our schools give what is called "trade education," a skilled labor supply is more readily available for manufacturing. If the transportation system has not been well developed, the business manager can move his product but slowly, and will be handicapped by that fact. If the marketing organization of society has not been well worked out, he will have difficulty in making purchases and sales.

All of us know of groups or associations (made up of special classes of persons) who play a very important part in determining how our productive resources shall be used. Think, for example, of the American Federation of Labor. It adopts certain policies concerning hours of work and other conditions

under which labor shall be utilized and succeeds in having these policies carried out by many employers. Think also of our scores of employers' associations, and hundreds of trade bodies that coöperate in developing markets (see p. 298), in developing better processes of production, and in various other forms of guidance of our economic activity. Think, also, of the numerous organizations which urge before the public, before our state legislatures, and before the national congress such measures as the building of internal waterways, the restriction of immigration, food inspection laws, the development of irrigation projects, and the suppression of vice and crime. In some cases these organizations engage in this work through a desire to improve the society in which we live. In other cases they do it as a means of increasing the profits of their members — in other words, they are sometimes actuated by the gain spirit. Whatever motives may influence them, these groups or associations are certainly important agencies in the apportioning of our productive resources.

The guidance of economic activity largely left to the individual. — But after all, our society, we pride ourselves, is one which relies mainly on what we call "individual initiative." In the main we have come to believe that individuals and not groups, and particularly not that large group called the state, should be mainly responsible for the apportioning of our productive resources to want-gratification. We have come to feel that collective action can best be used in those cases where the individual is not able to act, or where it will not pay him to act, and can best be used in developing an environment which will give the individual large opportunities to use his powers in the service of society. This is no place to inquire whether we are right or wrong in our belief that so much should be left to the individual. Since we do leave so much to him, he becomes a very important factor in the guidance of our economic activity — in the apportioning of our productive resources.

There is a very interesting scheme or instrument or device of which individuals make much use in their guidance of eco-

omic activity. It is the device of private property. This device is itself a social institution in the sense that society sanctions it and, if need be, enforces it. It is not worth while for us to try to work out a careful definition of private property. Indeed, it has no fixed, unchanging meaning. Its meaning differs among various peoples, and at different periods in the development of the same people. For our purposes it is sufficient to know that we have to-day, by sanction of the society in which we live, such property rights as those in our labor power, and may also have property rights in things lying outside our own persons, such as in land, buildings, commodities, and in money and claims for money. If you will think a moment, you will see that this means that each of us controls some social energy. At the very least we control our own work power. Some of us control land and capital goods as well. Some of us control money, and this gives us control of many other things — gives us authority over them. It gives us this authority in the sense that it enables us (by paying money) to induce other people to work for us or to let us have the use of their land or the use of their capital goods. Clearly, through the right of private property, the individual to-day has command of social resources. Some individuals have much wealth (have property rights over many things or much money) and these have command of large quantities of our social resources; other individuals have command of only small quantities.

Private property rights, then, give the individual power to command our social resources. What, now, induces or persuades this individual to direct these resources into some channels and to keep them out of others?

There are many factors that influence the individual in deciding what he shall do. One of these is personal taste or preference. Our tastes and preferences arise in part out of our own natures; in part they are the results of our social environment, for we cannot help being influenced by the attitudes of others and the institutions (for example, schools) which surround us. No matter how these preferences originate, they

influence us powerfully in determining what we shall do. Sometimes they influence us only in the sense that they keep us out of certain occupations which would be distasteful to us, leaving many other occupations open to us among which we make our choice on the basis of the promptings of the gain spirit referred to below. Sometimes our tastes and preferences are more definite and we feel that there is only one thing we would be willing to do, no matter how many sacrifices we had to make. There have been thousands who have been "driven" in this way to do the work of the artist, the teacher, the agitator, the scientist, the author, or the minister of the gospel.

But, after all, perhaps the strongest motive influencing the individual to-day is that of gain. Other things being equal, *we do what pays best*. We take up the specialized work that we find most profitable. If we own a piece of land, we are likely to rent it or sell it for the specialized purpose which offers us the greatest gain. If we are operating a steel mill or a machine shop, we will make the implements that bring the greatest net return. This explains how society's store of raw materials, such as timber, coal, and iron ore, are made into one form of capital goods rather than another. Business men everywhere, not only the owners of factories, but also the owners of farms, stores, railroads, mines, and all other business enterprises, are always trying to direct the land, labor, capital, and organization which they control into the production of goods which will give them the greatest gains. They direct productive energy into the channel where greatest profits are found.

The experience of a little town in Ohio during the Great War is illuminating. Before the war there was but one factory in this town. This was an automobile factory and nearly every worker in the town was employed there. The coal from a near-by mine was all used by the same company. All the steel and wood and rubber that were shipped into this town were used to make automobiles. But when the war began a stranger moved to the little city and put up a factory for the manufacture of war

munitions. He did this because the government was offering such high prices for these munitions of war that he felt certain he could make good profits. He accordingly felt able to offer high wages to workers — higher than the automobile manufacturer could afford to pay. Before long nearly every man in the locality had left the automobile works and was employed in the munitions plant. These workers had followed the lure of the greatest gain. The owners of the neighboring coal mine also found the munitions manufacturer ready to pay more than they were receiving for coal. They agreed to sell their whole output to the munitions plant. A steel mill from which the automobile maker had been securing steel also received a high bid for steel from the munitions maker, and as a result their output of steel was soon diverted from the automobile shop to the munitions plant. Presently the automobile manufacturer closed his factory. He could not secure the men or materials for manufacture. The social resources upon which he had been relying had been drawn into another form of production by the lure of greater gains. This case well illustrates what we mean when we say that our productive resources are apportioned among our various enterprises on the basis of the comparative gains made in those enterprises.

The entrepreneur bears risks and takes profits. — In large part, then, our productive resources are apportioned — our economic activity is guided — by individuals who command society's resources and who follow the lure of gain. Who are these individuals? They are each and every one of us, for each of us apportions at least his own work power. There are, however, certain individuals who specialize in apportioning productive resources, who do it on a much larger scale than most of us. These persons, sometimes called *entrepreneurs* or *enterprisers*, are business men who think they see a chance for gain by engaging in certain businesses, and assuming command, through private property rights, not only of their own productive resources but of those of the rest of us.

In effect such an enterpriser says to the rest of us :

“I think I see an opportunity. Indeed, I am so sure of it, that I will place my own wealth in the position of first risk and engage in this enterprise. I should like some of you to work for me; you need take no great risk; I shall pay you a definite sum regularly. I should like to borrow land and capital goods from others of you; you also need take no great risk; I shall pay you definite sums regularly. I myself will be the risk taker of this enterprise. If things go badly in making the goods, or if it turns out that I have made a mistake concerning the existence of an opportunity, the rest of you will not lose. As I go along, I shall pay wages to those who work for me, and those who have loaned me land or capital goods will be safe because I shall pledge for repayment not only the things I have borrowed from you, but also my own property which has been put into the enterprise. On the other hand, having taken the risk, I expect also to take all gains which may be left after I have paid wages, and have paid for the use of the land and capital goods and have met other expenses.”

It is hard to overestimate the importance of these organizers of production,¹ no matter whether they are operating stores, building railroads, running a farm, conducting a publishing company, or operating a theater. Clearly, if they have real vision and foresight with respect to profitable opportunities; if they are really able to forecast the wishes and wants of society; if then they are able to combine labor, capital, and land effectively, so as to use social energy efficiently, the “right” goods will be abundantly produced and all of us can get goods more easily than we could if social energy were used wastefully and inefficiently. Under such circumstances, the profits which these enterprisers would make might properly be regarded as payment to them for undertaking the risks connected with the organization of specialists in our society. On the other hand, if they are short-sighted or use poor judgment in converting social energy into goods, they are likely to suffer a severe financial loss. This fear whips many of them to strenuous work. We must not deceive ourselves with respect to the consequences of a failure of one of these enterprisers. At first glance we are likely to think that an unsuccessful entrepreneur loses money and

¹ Cf. Henry Clay, *Economics for the General Reader*, American edition, Chap. III.

that is the end of the matter. By no means. Social resources have been misdirected; they have been unwisely used; they are no longer available for wise use; our wants will not be as fully gratified as they would have been had this failure not occurred.

The selection of enterprisers. — If we see clearly the importance to us of the work done by these business men, we may well wonder that we do not appoint them with a great deal of care. As a matter of fact, we allow almost any one who desires to do so to become one of these organizers. They are self-appointed. Plainly, in a situation where any one may appoint himself to perform this function many men will appoint themselves who are incompetent. In other words, many men will go into business who are unfitted to assume such a responsibility. Once in, they cannot be removed excepting by themselves or by failure. Failure does remove many of these incompetents. In fact, the records of business show that a considerable percentage of business men fail sooner or later, but, as we have seen, this failure usually injures not only the organizer, but brings a loss to society as well. It is therefore a question whether the bankruptcy or failure method is not an unnecessarily expensive way of eliminating these inefficient organizers. If we so consider it, we view it as a disadvantage of our free enterprise method of appointing organizers.

A second disadvantage in this free enterprise method of production lies in the fact that although all persons have a legal right to become organizers, not all have an equal opportunity to undertake this work. There are several reasons for this. In the first place, some money is necessary to begin any business. Therefore, persons with no money, even though able, have less opportunity to become organizers than have persons with money, though possessing money is not necessarily a sign of competence. Our system of individual enterprise merely *allows* each individual to undertake this important work of organization; there is little to assure each individual that he will have *sufficient resources* to undertake this function.

We have seen enough of our specialized-interdependent-coöperative-machine-large-scale methods of production to be sure that one could only hope to fail who undertook to organize production without being intelligent regarding modern business. Not all persons have sufficient opportunity to obtain the education which enables them to carry on production with these modern methods. Some persons who are born the sons of men connected with large business houses can obtain enough education from association with their fathers. Others must rely almost entirely on what the schools offer in the way of such education. At present there is a very limited amount of such education given in schools. Schools of commerce or of business and finance in colleges and universities are increasing in number, and are giving more and more people an opportunity to become qualified for this work of organizing. In the secondary schools there is as yet very little of the type of education which is useful for this purpose. Our so-called "business courses" have in the past done almost nothing but teach boys and girls how to do the specialized work required of the clerks of business men. These courses have done almost nothing to teach boys and girls to become "business men" themselves. Yet it is so important to society for us to secure good organizers that we can only hope that even secondary schools will increase the studies which will make it possible for their graduates to understand how modern businesses are organized and operated.

Competition relied upon to secure good apportionment. — What we have said concerning our reliance upon *failure* to remove incompetent organizers, and upon *success* to strengthen the hold of competent organizers is only another way of saying that we rely upon *competition* to weed out the poorer organizers and to replace them with more skillful business men.

This furnishes us a good opportunity to see something of the place of competition in our industrial society. We rely upon it to a tremendous extent. Through it, in the main, we expect people to find their work in this great social structure of ours; this is true not merely of the organizers, but of all the rest of

us as well. Through the success or failure of enterprisers whole industries grow or wane; for example, success attracts a horde of enterprisers into the automobile business and failure pushes another horde out of the bicycle industry. The enterprisers in one territory or city find themselves advantageously located; those in another region are at a disadvantage. One territory grows, industrially speaking; the other shrinks. The enterprises using one technical process forge to the front and displace those using a less efficient process. Those using an effective marketing arrangement supplant those using an ineffective one. In brief, through competition our individual pursuers of gain find not only their own places in society, but find also the appropriate niches of our organization devices, our marketing methods, our technical processes, and our producing territories. It is not surprising that writers repeatedly call our society a competitive society. They mean that we rely upon competition to do many of the things which are performed in other societies by caste systems, heredity, and the grip of custom.

PROBLEMS

1. Be ready to explain what is meant by the apportionment function.
2. Explain how custom played a large part in the apportionment of social resources on the manor.
3. Did Robinson Crusoe find it necessary to perform the function of apportionment? How would he determine how much of his available energy to put to each task?
4. Why is it desirable that we apportion some of our social energy to keeping up our supply of land, labor power, capital, and methods?
5. In 1917, John Smith went into the business of manufacturing shoes. An economist who was a friend of his said to him, "It is your guess that society desires some of its social energy apportioned to shoes." Can you explain what the economist meant?
6. A man riding on a train recently observed a large factory which had been closed down because it could not sell the goods it produced. "Ah," said he, "some one has guessed wrongly as to how society

desired its productive energy to be apportioned." Can you explain what he meant?

7. It is the hope of profits that induces the organizer to do his best in calculating the demands of society for economic goods. In Schenectady, N. Y., is one plant of the American Locomotive Company. This factory does not make consumers' goods, but makes capital. What induced the organizer of the plant to go into this business?

8. Society depends for its supply of capital—machines and the like—upon the estimates or guesses of organizers as to the amount which it will be profitable to make. Explain.

9. Mention cases other than those in the text where government apportions productive energy (*a*) by direct participation, (*b*) by promotive action, (*c*) by prohibitive action.

10. Suppose that a county builds a courthouse. Is there apportionment of productive energy? How does the county get the funds?

11. What is meant by referring to taxation as a means of social control?

12. Mention cases other than those in the text where social environment plays a part in the apportionment of productive energy. Does it ever play a part in determining your own actions? Did it play a part in the apportionment of productive energy on the medieval manor?

13. Make as long a list as you can of the ways in which schools affect the apportionment of productive energy. Do the same for churches.

14. Does the social institution which we call the family play a part in the apportionment of productive energy?

15. The United States Government guaranteed farmers about \$2 per bushel for wheat raised in 1918. The purpose of this high price was to make sure that the farmers would attempt to raise large crops. Why should a large crop be the result?

16. "If the wheat crop of the world should fall off one-half next year and prices were not fixed by the government, a rise in price would be of great social advantage." Explain why.

17. Demand of consumers is the main motive power in the industrial system. We express our demands in terms of price and thus guide the producer. Explain.

18. When the United States entered the Great War, millions of men were conscripted for the army. Was this a method of apportioning productive energy to war uses?

19. When the United States entered the Great War, billions of dollars were raised by taxes and by the sale of bonds. With this money the government hired productive energy to make war goods. Was this a method of apportioning productive energy to war uses?

20. A certain man, during the period of the war, purchased two new pleasure automobiles. A friend said to him, "You are bidding against the government for productive energy. If you buy automobiles, the government will have greater difficulty in securing men and materials for munitions." Was the friend right or wrong?

21. A great number of people, especially at the outbreak of the war, said: "We must have business as usual; that is, people must buy as many goods as they have bought before the war." If business was carried on as usual, where could the government secure the productive energy to make cannon, shells, ships, aëroplanes, and other war munitions?

22. "The seat of authority is private property." Explain. Do you agree?

23. "We do what pays best." Does this statement require any qualifications?

24. "Price levels and profit margins send productive energy into industry x rather than into industry y ." Show how. Is any other method possible?

25. How does the business organizer induce labor power to produce the goods which he has decided society demands?

26. Rent is the payment which the organizer makes to the owner of land in return for its services. Interest is the payment which the organizer makes for funds to secure their services to aid him. Are these statements true?

27. Rent, interest, and wages are devices which make it possible for the organizer to draw productive energy into making the goods which he desires to make. What form of productive energy does he draw with each?

28. We give individual organizers an opportunity to apportion productive energy to the making of the goods we want. Do we reward

them if they are successful? If so, how? Are they punished if they are unsuccessful? If so, how?

29. Suppose that we put all the business of our country in the hands of one man, and gave him absolute authority to do whatever he pleased. Would it be desirable for him to apportion productive energy to producing different forms of goods? Would it be desirable for him to apportion some productive energy to the production of new capital? Can you see any way in which he could determine how much of each kind of goods to produce?

30. Are there any courses in your school designed to aid in the development of good business managers? How do you define a "good" business manager?

31. "Competition determines who and what is fit; it tries the available pegs in the available holes and uses the ones that go in best." If so, how?

32. "Competition determines what firm shall survive within an industry." Just how?

33. "Competition determines what industrial methods shall survive." Show how.

34. "Competition determines what marketing methods shall survive." How? Can you cite instances?

35. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 824-828, Selections No. 100-112, 320-331; pp. 885-890, Selections No. 336-361; pp. 947-950, Selections No. 362-377.

Bureau of Education, *Lessons in Community and National Life*: Series B, Lesson B-22, Millis, "Financing the War."

At the option of the teacher, additional lessons may be given on competition and private property from the references in *Readings in Industrial Society*.

STUDY XIX

THE WORK OF MONEY IN ECONOMIC ORGANIZATION

PURPOSES OF THIS STUDY:

1. To see how money facilitates the apportionment of our productive resources.
2. To get a view of the other services rendered by money.
3. To secure an understanding of the constituent parts of a monetary system.
4. To learn the characteristics of "good" money.

Apportionment is based upon comparisons. — If we think back over the various aspects of the apportionment of our productive resources as this has been discussed in Study XVIII, we realize that a sound judgment concerning "right" or "correct" apportionment can be reached only on the basis of a series of comparisons concerning the relative importance of various activities and goods.

Ought we to have more shoes and fewer books, or ought we to have more of both shoes and books and fewer potatoes? Or ought we to have more of all these and fewer lawyers' services? Is it more important to have many consumers' goods this year or to have many consumers' goods in later years by devoting much of this year's productive resources to enlarging our supply of producers' goods? Is it more important to improve our land resources or to enlarge our stock of capital goods, or to increase the efficiency of labor? Shall we gain in want-gratification by having the government tax certain industries heavily and use this money to pay subsidies to other industries? How much worth while are the services of certain government bureaus as compared with the taxes we have to pay to support them? There are literally billions of such comparisons to be made.

Measuring sticks are used in these comparisons. — It is clear that in making such comparisons we need some measuring sticks, — sticks which can be used for determining the relative importance of such varied things as olives, baseball bats, cigars, threshing machines, lawyers' services, government bureaus, and the services of a collector of butterflies; which can be used to determine the relative importance of consumers' goods now in existence as compared with consumers' goods of the future; which can be used by the business manager to tell whether more of this productive resource, and less of that productive resource would be wise in his business; which can be used, in brief, as guides in the apportionment of the productive resources of society.

As a matter of fact we do have such measuring sticks. Some of them are very hard to describe in any clear way. For example, the existence of certain "moral standards" in the community may be the measuring stick which the "collective will" (see p. 320) uses in deciding to encourage one enterprise and to frown upon another, but it would not be easy to describe these standards in detail, or to tell whence they come. All of us would be clear, however, that they are very important.

The particular measuring stick we are to examine in this chapter is the money unit and we shall study it far enough to see it operating in the so-called "price system" of modern society. We shall see that it is not a perfect measuring stick. It is, however, one which we use a great deal, and it is worth our while to understand it.

We have already caught a glimpse of some things done by money economy and the price system (see p. 199) in our discussion of the use of money to facilitate exchange by overcoming the difficulties connected with the double coincidence of barter. In this chapter we shall again take up the study of money. Our immediate purpose will be that of seeing how it helps us calculate concerning desirable courses of action, but we shall take this opportunity to look also at its other uses or functions and shall discuss what constitutes a good or satisfactory money.

Money is a medium of exchange. — Perhaps the uses of money with which we are most familiar are those which are common in family life. The family uses money continually in buying the goods it uses or consumes. A comfortable home can be rented or purchased with money. The butcher and grocer are glad to fill the larder with edibles in exchange for it. The owner of the clothing store provides clothing for the family that has money to offer him. A doctor's services can be employed, theater tickets can be obtained, books can be provided, and travel is possible for the family with money to exchange for the enjoyment of these things. All the uses of money mentioned in this paragraph have illustrated its use as a means of exchange. In earlier chapters we have seen many other illustrations of this same use or function of money.

Money is used as a standard of deferred payments. — A second use which the family makes of money is in saving; as, for example, to build a house, or for a "rainy day," or for old age. It is, of course, conceivable that this saving might take the form of storing up supplies of various sorts, but in practice the modern family seldom does this. It "saves money." Even in saving money the modern family does not hoard it — does not hide it until the time has come to use it. It deposits it in a savings bank. We shall see later how the savings bank uses this money. For the present we need only notice that the bank repays, together with interest, the sums deposited in it by those who have done the saving. This illustrates the use of money as a "standard of deferred payments." Another common case is seen when money is borrowed, to be returned later. Other illustrations are plentiful.

Money is used as a measuring stick. — Now notice that the unit of money — it is the dollar unit in the United States, the pound sterling in England, and the franc in France — helps the family to calculate; helps it to make comparisons; helps it to choose what to buy from among the many goods it might buy. Suppose the family is deciding whether to buy a new piano or new rug. As soon as it learns that the piano will cost much

more than the rug, it becomes clear that if the rug is chosen, many additional things can be bought. Thus the dollar unit is a sort of measuring stick which enables us more quickly and easily to decide on courses of action. If the family income is \$150 a month, and the family is spending \$35 for rent, not more than \$115 are available for food, clothing, light, heat, savings, and miscellaneous expenses. If the family income is increased or reduced, it is easy to calculate what this change means in the family expenditures and to apportion the new sum to the various uses. Thus by computing its expenses and its income in dollar terms — sometimes this is called *making a budget* — the family is able to organize or adjust its expenses to fit its income. It would be hard indeed for the family to plan and organize its expenditures and savings if it had no unit in which calculations could be made.

Business men use money in all these ways. — The dollar unit renders similar services to the business man. A farmer, for instance, uses money to buy or rent his land, to stock his farm with horses, cattle, swine, and sheep, to buy farm machinery, and to hire men to work for him. He sells his produce for money. The merchant uses money to rent a store and to fill its shelves with merchandise. With it he employs clerks, buys advertising space in periodicals, and pays the bills which are sent him for lighting and heating his place of business. Of course, he also sells his goods for money. The same story could be told of all our modern specialized producers. Indeed, we have already seen this situation in our discussion of the coöperation of specialists (see Studies IX–XII).

So also the business man makes much use of money in deferred payments. While full discussion of the matter must come later, we already know much business is done “on credit.” Persons buy of the butcher, the baker, the candlestick maker and “charge” the purchases, making payment at the end of the month. Business men buy and sell “on 30 (or 60, or 90) days’ time,” the goods being delivered at once, and payment being made at the time stated. Business men borrow from the

bank, for short periods, on various kinds of "promises to pay," and from banks and others for long periods by "issuing bonds." Few things are more common than deferred payments.

Business men also find the pecuniary unit indispensable in calculating, comparing courses of action, and making plans. A farmer, for instance, is deciding whether to raise corn or wheat on a certain field. He knows, for example, that for the same cost he can raise about 60 bushels of corn on each acre, or about 30 bushels of wheat. Will he decide to raise corn because corn will give him a greater yield in bushels? No, he will calculate the number of dollars for which each crop can be sold and let that be his guide. If corn sells for 75 cents a bushel, and wheat for \$2.25 a bushel, it will be more profitable to raise wheat even though the number of bushels raised is far less, provided that the total costs are the same in the two cases. Again, by comparing the cost of hiring men, and the cost of a new labor-saving machine, he can decide which form of productive resource it will be more profitable for him to use. The money unit thus serves the farmer as a sort of measuring stick in deciding what crops to raise, and what forms of productive energy to make use of.

The measuring stick and apportionment. — All other business men find the pecuniary unit a great assistance in making calculations concerning their business; in making comparisons concerning different courses of action. One of the decisions which a manufacturer is constantly called on to make is whether he shall hire men or buy machines to do certain kinds of work. A certain manufacturer was making shoes, the leather for which could be cut out either by men or by machinery. His problem was to find out which was the better method. The machine would work faster but would cost a great deal of money. The manufacturer learned, however, that such a machine would cut the leather for a million shoes before wearing out. The cost of the machine was \$1000. When he compared this, plus its incidental cost for power, etc., with the number of dollars that it would take to have leather for a million shoes cut out by hand,

he found it easy to reach a decision. In such ways manufacturers are continually using our unit of money as a measure with which they can plan the least expensive methods of producing goods; they are continually using it to plan the apportionment of productive resources within their plants.

The family and the business man are by no means the only parts of our society which use the pecuniary unit to facilitate calculations — as a means of measuring the relative worth or significance of different things or of different courses of action. A laborer who is seeking work makes use of the dollar unit in this way. If two jobs are offered him one of which is no more difficult or distasteful than the other, he is almost certain to accept the task which gives him the greater number of dollars. The owner of land, other things being equal, will rent or sell his land to the person who is able to bid highest. The owner of money commonly decides the use to which his money shall be put on the basis of the best offer for its services. To a large extent all of us plan our actions by calculating in terms of our pecuniary unit — the dollar. Even government which is able to apportion productive resources by authority must always estimate the cost of its activities and then estimate the revenue which must be brought in from various sources in order to meet this cost.

One aspect of the use of the money unit as a measuring stick is particularly important in connection with our present study. As we have many times seen, an outstanding purpose of economic activity is want-gratification. What wants? What ones are most pressing? The money unit furnishes us a language which we can use very effectively in telling enterprisers the wants we regard as most important. If, when you or I wanted two different things, we could only say, "I want one a great deal, and I want the other very much," no business man could tell which it would pay best to produce for us. But in pecuniary terms we can express ourselves so that every one will understand. If we say, "I will give two dollars for one article, and three dollars for the other," entrepreneurs can then

calculate what it will cost to make each article, and can know which one it will be most profitable for them to produce. If our desire for one of these articles should increase so much that we would be willing to pay three or four times as much as it would cost to produce it, it is highly probable that a horde of enterprisers would be eager to produce this commodity if they thought that our attitude was typical of that of the rest of society.

Clearly, when we express the strength of our demand in prices, the business man, the organizer, has a guide. Every farmer, for example, can tell by the number of dollars that are offered per bushel just how strongly people are demanding wheat as compared with corn and other grains. The grains that are demanded most loudly in our language of prices as compared with the cost of producing them will be the ones that the farmer will raise. Merchants, manufacturers, and all other business organizers heed the same voice. All understand the demand expressed in our language of dollars and then try to estimate or calculate what wants it will be most profitable to gratify. So true is this that some writers speak of the consumer as being the person who really guides our economic activity — who really determines how our productive resources shall be apportioned — since producers so anxiously await his wishes. "Await" is not always the right word. Quite frequently producers *anticipate* the wants of consumers and even cause these wants to move in certain directions by extensive advertising. This, by the way, explains why advertising and advertising agencies are sometimes spoken of as important factors in the apportionment of our economic activity.

Money performs very useful functions in our society. — A summary statement of the functions of money in modern industrial society might readily and accurately be made in terms of the topic headings of the chapter up to this point. It will be worth while to review them with this purpose in mind. It will be helpful, also, to look at another statement of the work of money which, while covering the same fundamental points,

is stated in somewhat different language. One writer¹ cites the following tasks (among others) which are performed by money in economic organization. You will find them self-explanatory.

(1) It facilitates economic calculation.

(2) It permits the organization of consumption. The consumer can use his money income ("generalized purchasing power") in any proportion he chooses among the various goods available. He can organize his consumption into a balanced whole, using the goods of the entire world. He could not do this so readily without a calculating device and without a medium of exchange which does away with the "double coincidence of barter."

(3) It permits the organization of production, not only by making it easier to apportion productive resources among the multitudinous plants, but also by facilitating apportionment within a given plant. Costs and proper proportions of factors of production can be gauged and courses of action determined upon.

(4) It articulates productive and consumptive activities into an organic system. Through price changes producers are induced to make available the goods desired by consumers. The productive mechanism shifts to meet shifts in wants.

You will not be confused by the personalizing of money in the foregoing statement. Money does not itself do these things; it is used by *persons* as a means — and not necessarily the sole means — of doing these things.

What is money? — Money has been shown to play such an important part in our economic organization that our interest ought to be aroused in finding out just what money is. There is nothing very mysterious about it. Thousands of years ago the need of some sort of measuring stick or language device, added to the need of finding some way of avoiding the difficulties connected with the double coincidence of barter, resulted in some one good or commodity being taken as a standard or basis of comparison and then used as a medium of exchange. Dozens of different commodities have at one time or another,

¹ W. H. Hamilton, "The Rôle of Money in Economic Organization," in Moulton's *Money and Banking*, Pt. 1, pp. 39-44.

and among one people or another, been used for these purposes. Furs or skins were so employed in many ancient nations, and, indeed, are used for this purpose to-day; our Indians used wampum or bead currency; leather money has frequently been used; sheep and cattle have constituted currency among pastoral peoples; slaves, tobacco, salt, paper, iron, gold, silver, grain, have all been thus used.

As time has gone on, however, gold has come to be more and more used by civilized nations as their "money metal" and we, in the United States, have the gold "dollar" as our monetary unit. What is this money unit? What is this dollar? Here, also, there is no mystery. The dollar is merely a lump of gold of a certain weight (25.8 grains) and fineness (nine tenths gold and one tenth copper alloy). This standard was set, by law, by our Congress and is entirely similar to other standards of weights and measures, such as 60 pounds of wheat constituting a bushel and 8.33 pounds of water a gallon. We are not here concerned how it came to be called the dollar (would it have made any difference if it had been called a squeegee?) nor how Congress came to set the standards of weight and fineness it did set. All we need to remember is that the gold dollar¹ is just a lump of gold.

The fact that multiples of the gold dollar are "coined" does not change them from being lumps of gold. Our government, through its mints, will take gold brought to it in sufficient quantities by any one, turn it into coins, and return the coins to the owner. The people can then use these coined lumps of gold with entire confidence that they have a certain weight and fineness and thus the use of scales and testing devices (which would be necessary if the lumps were uncoined) is not necessary in trade. The "milled" edges and stamped faces of the coins make it difficult for any criminally inclined person to take metal out of these coins without detection and so they keep

¹ The gold dollar is not itself coined. It would be too small for convenience in circulation. We call the gold dollar and also the mill "money of account," meaning that they are used in computations, but are not coined for use in exchanges.

their weight except for incidental wear. The government keeps a monopoly of coinage, not because it makes any profit from running the mint, but because it would be unfortunate for our economic affairs to have more than one standard or pecuniary unit, and we should certainly have many and varying standards if any person who chose to do so could coin money of any weight and fineness he liked.

Representatives of the money unit. — The gold dollar is then our standard; our unit of measurement. Since, however, some business transactions involve very small amounts and others involve quite large amounts, we have found it convenient to make available for use multiples of the dollar and fractional parts of the dollar. Then, too, since even gold is awkward to handle, we have developed a system of paper representatives redeemable in coin upon demand. Sometimes these paper representatives are issued by the government; sometimes they are issued by private institutions (banks), — generally under some kind of government supervision. In the United States, as in most other nations, the kinds of money we have in use are largely the result of historical growth and cannot always be described as a logical arrangement. We do not need to know all the details about the different kinds of money in order to understand what work money does in modern society, but you will be interested in the following outline of the kinds of money in the United States to-day. All except those marked by an asterisk (*) are issued by the government. Those so marked are issued by our banking system under government supervision. Directly or indirectly all forms are redeemable in gold coin, for the gold dollar is our basic unit. “Redeemable” means that the government, in order that there may be no doubt about the worth of representative money, will give the bearer gold in exchange for representative money if he so desires. In the same effort to maintain a sound money system the government will redeem in full-weight coins gold coins which have become light through wear, provided the wear has not been allowed to go too far.

KINDS OF MONEY IN THE UNITED STATES TO-DAY

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|--|---|--|--|---|--|---|---|---|
| 1. Different denominations of the basic unit, that is, the dollar — for convenience in exchange | { | Double eagle (\$20 gold piece)
Eagle (\$10 gold piece)
Half eagle (\$5 gold piece)
Quarter eagle (\$2.50 gold piece) | | | | | | |
| 2. Paper representatives of the basic unit or multiples of it — for convenience in exchange (token currency) | { | <table border="0"> <tr> <td style="vertical-align: top;">a. Really, warehouse receipts for metal deposited in United States treasury (100% reserve held against them)</td> <td style="vertical-align: middle;">{</td> <td style="vertical-align: middle;">Gold certificates
Silver certificates
Treasury Notes (few)</td> </tr> <tr> <td style="vertical-align: top;">b. Secured by deposit of partial reserve of gold or of bonds or of commercial paper</td> <td style="vertical-align: middle;">{</td> <td style="vertical-align: middle;">United States Notes (Greenbacks)
*Federal Reserve Notes
*Federal Reserve Bank Notes
*National Bank Notes</td> </tr> </table> | a. Really, warehouse receipts for metal deposited in United States treasury (100% reserve held against them) | { | Gold certificates
Silver certificates
Treasury Notes (few) | b. Secured by deposit of partial reserve of gold or of bonds or of commercial paper | { | United States Notes (Greenbacks)
*Federal Reserve Notes
*Federal Reserve Bank Notes
*National Bank Notes |
| a. Really, warehouse receipts for metal deposited in United States treasury (100% reserve held against them) | { | Gold certificates
Silver certificates
Treasury Notes (few) | | | | | | |
| b. Secured by deposit of partial reserve of gold or of bonds or of commercial paper | { | United States Notes (Greenbacks)
*Federal Reserve Notes
*Federal Reserve Bank Notes
*National Bank Notes | | | | | | |
| 3. Metallic tokens or representatives (subsidiary currency) of the basic unit or parts of it — for convenience in exchange | { | Silver dollar
Silver half dollar
Silver quarter dollar
Silver dime
Nickel five-cent piece
Copper (bronze) one-cent piece | | | | | | |
| 4. Money "of account" which is not coined but is used in computations | { | Gold dollar
The mill | | | | | | |

Price changes have many causes. — If we become accustomed to thinking of the dollar as just a lump of gold, we shall more readily understand prices and changes in price. When we say that the price of a pair of gloves is one dollar, this is only another way of saying that we pay one of these lumps of gold (or a representative of this lump) for the gloves. A price of two dollars means two lumps; three dollars means three lumps; half-a-dollar means half a lump. A price, then, is the amount of gold, measured in lumps, that we give to get an article. A general rise of prices means we pay more lumps than formerly for the things we purchase; a general fall of prices means we pay fewer lumps.

The causes lying behind general changes in price are among the most complex problems in economics and we shall not try to

study them in detail. It will be sufficient for our purposes if we see that such general changes might be due —

1. To things happening to gold ;
2. To things happening to goods for which money is exchanged ;
3. To things happening to both gold and the goods.

Let us take these three possibilities up in order.

1. Suppose, by a miracle, it should rain many, many millions of lumps of gold to-night. Clearly, to-morrow morning a lump of gold would be less valuable than it was this morning. It would take more of them to buy a pair of gloves. But suppose that instead of this miracle, vast deposits of gold which could be mined very cheaply should suddenly be discovered. Clearly, in time, the supply of gold would be increased from this cause and prices would rise. This is one illustration of how price changes may be due to changes on the gold side of the exchange.

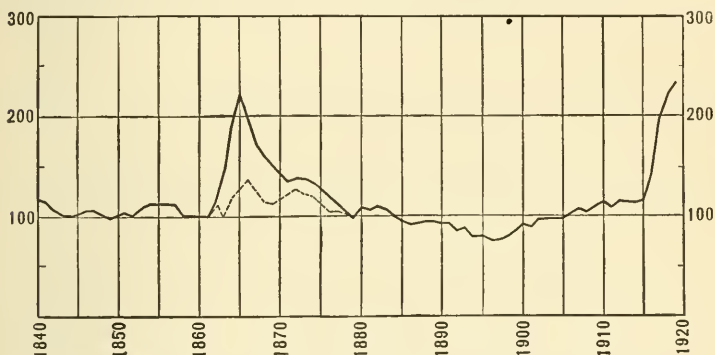
2. But take another case. Suppose, with no change in the amount of gold, a miracle should bring about the destruction to-night of half of each article for which money is ordinarily exchanged. Clearly, to-morrow morning, because of the greater scarcity of these goods (as compared with gold) people would pay more lumps of gold for each of them than they did this morning, that is, prices would rise. If, now, instead of this miracle, the supply of ordinary goods should gradually decline because of war-destruction of materials, labor unrest, or some other cause, their prices might be expected to rise. This is one illustration of how price changes may be due to changes on the goods side of the exchange.

3. The third case needs no discussion. It would be illustrated by supposing that an increased supply of gold occurred in the same period that a diminished production of other goods occurred.

Prices change very considerably. — The possibility of changes in general prices (in the “ price level ”) is no flight of fancy. It is a very common occurrence. If we take the last

few generations of the history of our own country as an example, we see very startling price changes. The accompanying chart shows the changes which have occurred since 1840 in the price level of a wide range of typical commodities. It has been reduced to a percentage basis so that comparisons may readily be made.

Price changes are serious matters.—The case of John Wilson shows how disappointing price changes may be. Mr. Wilson had a family of four and wished to make some provision



From H. G. Moulton, The Financial Organization of Society, the University of Chicago Press.

LEVEL OF PRICES FROM 1840 TO 1920

Heavy black line shows index of wholesale prices. Dotted line shows gold prices during period of greenback depreciation, 1862-1879. In what periods were there marked increases? Marked decreases? Approximately level prices?

for them in case of his death. He thought that if he could arrange for them to have an income of \$1500 a year, it would suffice. Accordingly from 1895 to 1914 he carried life insurance of a sort that would pay his heirs \$1500 a year for 20 years after his death. His death occurred in 1914 and his family has received since his death the \$1500 a year. But since 1914 prices have gone up about 100 per cent (to 1920), so that the \$1500 only purchases about half the commodities John Wilson thought his family ought to have.

Another case is that of Paul E. Kent, who teaches in one of our

colleges. From 1914 to 1920 prices rose 100 per cent, but the college was able to advance Mr. Kent's salary only 25 per cent. This is rather typical. Wages and salaries ordinarily do not rise as fast as other prices. This means difficulties for the wage earners and salaried men thus affected.

Then, too, changing prices make matters more uncertain for business men. Their risks are increased. A striking case of this occurred in France during the French Revolution when that country was issuing great masses of paper money and prices were fluctuating rapidly. "The great manufactories of Normandy were closed; those of the rest of the kingdom speedily followed, and vast numbers of workmen in all parts of the country were thrown out of employment. . . . In the spring of 1791 no one knew whether a piece of paper money, representing 100 francs would, a month later, have a purchasing power of 100 francs or 90 francs, or 80 or 60. The result was that capitalists declined to embark their means in business. Enterprise received a mortal blow. Demand for labor was still further diminished. The business of France dwindled into a mere living from hand to mouth. This state of things, too, while it bore heavily against the interests of the moneyed classes, was still more ruinous to those in more moderate, and most of all, to those in straitened, circumstances. With the masses of the people the purchase of every article of supply became a speculation — a speculation in which the professional speculator had an immense advantage over the buyer. Says the most brilliant apologist for French Revolutionary statesmanship, 'Commerce was dead; betting took its place.'"¹

In brief, price changes (1) mean uncertainty for the holders of fixed or slowly changing incomes; (2) uncertainty for those concerned with deferred payments, and (3) uncertainty for the risk-takers in business enterprise.

Good money has certain definite characteristics. — Since money plays so important a part in our modern life, we naturally

¹ Andrew D. White, *Paper Money Inflation in France*.

wish our money to be of a kind which will do its work well. This is a very large and a very complex matter, but we can see something of what is involved by asking ourselves whether gold is a good basis for a monetary system.

1. The basis for a monetary system ought to be generally acceptable, and this means in practice that it ought to be valuable in itself. Only on the basis of its being generally acceptable to sellers can it render good service as a medium of exchange. Of course, it will be helpful, in a régime of world commerce, if it is held in approximately equal esteem by all peoples. Gold measures up to this requirement reasonably well.

2. It ought to be homogeneous, readily divisible, and capable of being readily reunited. Exchange is certain to require its use in varying quantities, and these varying quantities ought to be obtainable under conditions which will make calculation easy. Two pounds or bushels of the money good ought to be worth just twice as much as one. This can only happen when quantities can be broken up and combined without loss of value. Diamonds would not make a good money commodity because a large diamond is much more valuable than the two small diamonds which could be made from it. Gold, on the other hand, neither gains nor loses in value (in proportion) by being divided or combined.

3. It ought to be portable so that it can be carried from one place to another readily. In the main, this means that it ought to have considerable value in proportion to its bulk. Gold meets this requirement.

4. It ought to be readily recognized and distinguished from other substances so as to avoid confusion and inconvenience. For this, gold serves as well as would most other commodities.

5. In particular, it ought to have stability of value when it comes to making payments over long periods of time. If the commodity concerned is durable, this durability assists in giving stability of value. Upon the one hand, a durable commodity does not greatly deteriorate with use or over long periods

of time ; upon the other hand, its durability finally results in a very large fund being in existence so that the relatively small yearly additions of supply do not cause great changes in value. This principle is a simple one. A bucket full of water poured into a lake raises the level of the lake far less than it would raise the level of water in a barrel. It would be ideal if we could find a money commodity which had perfect stability of value. We have never found it, however. Even gold has been quite unsatisfactory from this point of view.

Our pecuniary organization is very useful but has defects. — We ought to have, now, a fairly clear idea what money is and how it is used in the organization of our want-gratifying machine. It is a tremendously useful device. Without some such device, it is hard to believe that we could ever have developed our modern world-wide commercial organization ; our modern fruitful specialization ; our modern large-scale production ; our modern “ control ” devices in business and in other forms of management. Money is a good tool. But like most other good tools, it can be used for bad purposes. From time to time in our study we shall see certain unfortunate consequences of the fact that much of our modern life is worked out in financial terms. In this present chapter our concern has been simply that of seeing money as a tool to accomplish desirable ends.

PROBLEMS

1. Give some examples of barter in modern life. What difficulties of a system of barter are overcome by the use of money?
2. Suppose we had always relied on barter, — had never had any monetary system. Do you think we would have had large-scale production? Railroads? Specialization? Machine industry?
3. A buys 1000 bushels of wheat from B at \$1 a bushel. B accepts in payment a note for \$1000 payable with interest two years from date. Two years later A pays B the \$1000 with interest as agreed. Which of the money functions does money perform in the course of these transactions?

4. Explain as to one who knows nothing about it, how a merchant uses the pecuniary unit in determining what goods to put on his shelves. Explain how a manufacturer determines what process will be cheapest.

5. Producers guide their output by the demand of consumers expressed in dollar terms. Explain. What methods might be used to guide producers if we had no monetary unit?

6. Money gives its possessor power to command productive forces. Is this statement true of the manufacturer? How can we be sure the possessor of money will command productive forces in a way that will be useful to society?

7. Would the merchant not be as well off if there were no money? Could he not as well hire clerks and pay his bills in merchandise?

8. What is a budget? Find out what you can about the budget of some business firm. What are the advantages of a family budget?

9. Without cost accounting, production is mostly guesswork. What does this statement mean? Is there any truth in it? What difference does it make to the community whether a manufacturer of clothes has a good cost system?

10. Without a unit in which to calculate, our expenditures would be planless and unreasonable. Is this statement true? Explain how the pecuniary unit enables us to organize our consumption.

11. What is the dollar? Would it have been possible to have had a dollar which was not gold?

12. In the days of the California gold discoveries different individuals and firms coined their own gold pieces. Is there any reason for prohibiting such a practice and reserving the right of coinage to the government?

13. The coinage of money and the prevention of counterfeiting are made duties of the national government by an explicit provision in the Constitution. Why should these duties be laid upon the national government rather than upon the state governments or local communities?

14. In the middle ages there were places where one could not journey so much as 25 miles without having to have his money changed. Why are money changers not necessary when one crosses from one of our states into another?

15. Can you see any reasons why the government should make such exact requirements of the composition of the alloy of our coins and the weight of our coins?

16. What does the word "token" mean? Why is our small change not made of gold? What reasons can you assign for having subsidiary coins? For having paper money?

17. What would be the advantage of a $2\frac{1}{2}$ -cent piece? Of what metal would it probably be made?

18. Many of the designs on paper money are intended to represent some fact of history. Examine several different denominations of bills and describe the pictures and show what they mean.

19. How many different kinds of materials are used for money in the modern monetary system?

20. In 1916 the United States mint at Philadelphia made coins for Cuba, Colombia, Ecuador, Salvador, Venezuela, and Peru. The San Francisco mint made coins for the Philippines. Why did these countries not make their coins at home?

21. A Canadian dime passes at par in Minneapolis, but is worth only 8 cents in St. Louis. Can you see any reasons for this? Would the situation be the same with gold money?

22. Gold money is standard money. How are other forms of money kept equal in value to gold money? Is it important that they should be kept equal in value?

23. Some money is called bank notes. Why? Some bills are called silver certificates, others gold certificates. Why?

24. Explain how a general rise of prices is another way of saying that gold has less purchasing power. Is a general rise of prices a good thing? If so, for whom?

25. Sometimes we say that a rise of prices draws social resources into production in a certain field. Do we have in mind a *general* rise of prices when we say this?

26. Was the possessor of a fixed income in an advantageous or in a disadvantageous position during the decade from 1870-1880? From 1910-1920?

27. During the Revolutionary War colonial paper money was much reduced in purchasing power. What does this mean? Why did it

happen? At the end of the Civil War Confederate paper money had no value. Why was this?

28. Make a list of the qualities desirable in the standard money of a country. Skins, cattle, tobacco, sea shells, slaves, wampum, olive oil, stones, and dried fish have all been used as money. Point out disadvantages in each of these as money.

29. Much is said of the desirability of a *stable* money. What does this mean? Why is it desirable?

30. Does the value of a coin change from time to time? Explain your answer.

31. When one has things charged at a store, one is depending on credit rather than coin. What is credit, and how is it related to coin?

32. Can we compare the value of our unit with those of foreign countries? How many dollars in an English "pound"?

33. Does foreign paper money pass as readily in this country as foreign coins? Why?

34. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 304-310, Selections 113-119.

Bureau of Education, *Lessons in Community and National Life*:

Series C, Lesson C-21, McLaughlin, "Before Coins Were Made."

Lesson C-22, Reticker, "The Minting of Coins."

Lesson C-23, Reticker, "Paper Money."

Lesson C-24, Kirkpatrick, "Money in the Community and the Home."

STUDY XX

FINANCIAL INSTITUTIONS AND FINANCIAL ORGANIZATION

PURPOSES OF THIS STUDY:

1. To study the financial institutions that aid the business organizer in securing funds.
2. To see these institutions as an organized system aiding in the production of goods.

The story of the work of the pecuniary unit in our modern industrial society would be quite incomplete without some account of the devices and institutions which have come into being in connection with the work of that unit. In this chapter we shall make a survey of these devices and institutions from the point of view of the business manager, who, having decided to direct social resources to the production of some good, makes use of them in getting command of productive energy. Of course, the business manager is not the only person who uses them. His use will, however, serve as a good sample.

We have already seen (see p. 325) that one who commands money or its equivalent is in a position to command productive energy. He uses funds to get land, labor, and capital, to do his bidding. The problem before us now is, how does he get command of funds? What devices and institutions are used in the process?

The simplest way in which the organizer may obtain funds with which to pull productive force into his business is to draw upon his own resources. But not every business organizer has sufficient resources to conduct his business on as large a scale as he desires. It is necessary, therefore, that he obtain funds elsewhere. One way of doing this, in a successful business,

is that of turning the *profits* back into the business. Such profits could be used for various purposes; for example, for purchasing more machinery or for enlarging the factory (these would be illustrations of increasing what we call "fixed" capital) or for purchasing more raw materials (which are one form of "working" capital). This, however, is a slow way unless profits are unusually large. It probably would not enable the manager to take quick advantage of some new development in markets or in technology. There are, fortunately, ways in which he may suddenly expand his funds. He may do so by borrowing from a friend or by borrowing through a loan agent who makes it his business to find out who will lend money and to bring borrowers and lenders together. He may obtain additional funds by taking a partner into his business. This method, as we saw in an earlier lesson (see p. 276) gives only a limited amount of money. A corporation may be formed and enough shares of stock sold to provide the needed resources. All of these methods we have studied briefly earlier. (See Study XVI.)

In our further study of the ways in which managers get command of funds let us distinguish between two types of cases: (a) sometimes the manager wishes to command additional funds for a short time only, — he wishes to add to his working capital, (b) sometimes he wishes to command additional funds for a long time, in which case he wishes to add either to his fixed capital, or to his working capital, or to both.

Working capital secured from trade credit and from banks. — There is hardly a business organization which does not have need of funds for short periods of time. A farmer, for example, being less busy in the cold months than in the summer, often decides that he will buy a carload of cattle and fatten them during the winter. He buys the stock, perhaps, in October. By May they are ready for the market. Unless he has surplus funds of his own it is necessary for him to make a loan for six or seven months. He plans to repay the loan with its interest when the cattle are sold.

Or suppose that a dry goods merchant gets in his stock of spring styles in February. This makes a demand on him for a large payment. By May or June, he expects to have this stock entirely sold. He, therefore, needs this money only for a period of three or four months. Or, again, a manufacturer

\$500.00

Due.....

No. 246 Chicago, Illinois, March 18, 1919.

Sixty days--- after date for value received the undersigned promise to pay to the order of

The National City Bank of Chicago

Five hundred and $\frac{no}{100}$ -----Dollars
at its Banking House in Chicago, Illinois, with interest
After Maturity at the rate of seven per cent per annum
until paid and with costs of collection and a reasonable
attorney fee if not paid at maturity. Presentment and
demand for payment, notice of non-payment, protest
and notice of protest are each and all hereby waived by
the makers, endorsers and guarantors, jointly and sever-
ally. Any indebtedness owing from said bank or legal
holder hereof to the undersigned or guarantor may be
appropriated and applied by said bank or legal holder
on this note at any time either before or after maturity
of this note and without demand upon or notice to
any one.

Business address:

-----John Doe-----

-----26 Lafayette Ave-----

-----Richard Roe-----

AN UNINDORSED PROMISSORY NOTE

may wish to purchase a supply of steel. In three months' time he expects to have this steel made into hardware and sold. He, like the other organizers, needs a short time loan. Sometimes the organizer gets this loan by (in effect) borrowing from the person from whom he buys the goods. He buys "on trade credit" which means that he obtains a deferment of payment until he has had a chance to sell the goods. A great

No. 137 Due May 18, 1916 \$500.00

Chicago, Illinois, March 18, 1916.

Sixty days after date pay to the order of

---Ourselves.-----Five hundred dollars---

The Obligation of the acceptor hereof, ----(Smith)----
arises out of the purchase of goods from the drawer
---(Doe)---maturity being in conformity with original
terms of purchase. The drawee---(Smith)---may ac-
cept this bill payable at any bank, trust company, or
banker's office in the United States which he may
designate.

To ---John Smith---(Drawee)

---John Doe---
(Signature of Drawer)

157-10th Street

New York City

SAMPLE OF A TRADE ACCEPTANCE

Note: If Smith writes across the face something like this

March 20, 1916.

Payable at Guarantee Trust Co. of New York

145 Broadway, New York

John Smith

Doe can then "discount" it at once at his bank, say the National City Bank of Chicago, and the bank later collects from Smith.

deal of working capital is obtained in this way. The seller "carries" the buyer for a time. True, the seller is likely to take the evidences of the transaction to a commercial paper house or to a commercial bank and sell them to this institution, which then really does the "carrying," but that we shall discuss separately.

The financial institution, or middleman, that is most useful in supplying business men with money for short periods is the *commercial bank*, which is the type of bank found in every town and familiar to all of us. The bank may make such a

loan on the basis of the "promissory note" of the borrower (often asking that others "indorse" the note or stand ready to repay if the borrower proves unable to do so). Or the bank may "buy" a "commercial bill of exchange" which the borrower holds against some one, — generally some one to whom he has sold goods "on time." In this latter case the bank advances the money at once (at a discount) and collects later from the buyer of the goods. There are other ways of making a bank loan, but these are the main ways and they serve as good samples of all.

The commercial bank lends funds of its shareholders and depositors. — But where and how does the bank get the funds it lends? From two sources. When the bank was started the owners turned in money which can be so used. Also, from time to time people "deposit" money in the bank with the understanding that they are free to draw it out at any time they please.

When one of us makes a deposit in a bank for the first time (let us assume for our present discussion it is in cash, though this is not usually the case) the bank enters our name in a book which is called its *ledger* and "posts" or writes under it the amount of money which we have deposited. It keeps such an account for every one of its depositors. Suppose that you have deposited \$500 in cash with your bank. Your account now shows that \$500 is credited to you. The next day you buy a horse for \$200 from a friend named Brown. You give him an order, or check, ordering the bank to pay him \$200 of your money. You take the horse and he takes the check. Brown goes to the bank. The check gives him authority to demand \$200 of your money in currency, but, instead of ordering the bank to pay him \$200, he orders them to keep the \$200 for him. The bank accomplishes this without handling any money. It merely subtracts \$200 from your account and places \$200 to Brown's credit. During the next week, Brown writes two checks "on the bank" ordering them in one case to pay \$50 to the butcher, and in another \$50 to the grocer.

Denver, Colo., Sept. 1st, 1918 No. 42

First National Bank of Denver

Pay to the order of

----- John Brown ----- \$200.00 -----

----- Two hundred and ----- $\frac{no}{100}$ Dollars

----- Henry Smith -----

A COMMON FORM OF CHECK

The butcher and grocer take these checks to the bank and follow the same practice which we have already noticed. They merely deposit these checks. The bank subtracts the \$100 from Brown's account and credits \$50 respectively to the accounts of the butcher and the grocer. Thus at the end of the week, the bank's ledger stands as follows:

To your credit	\$300.00
To Brown's credit	100.00
To the butcher's credit	50.00
To the grocer's credit	50.00

The bank itself still has the \$500 in cash which you deposited. Although it has satisfied everybody, it has not had to pay out any money. It is an extreme illustration to assume that *no* money was paid out, but usually only a small proportion is drawn out. Bankers, therefore, have seen that they can make loans from the cash which is deposited with them. They have learned that when money is placed in their hands, in at least three cases out of four, and frequently in nine cases out of ten, the orders or checks which are drawn against these deposits are not cashed, — that is, taken in currency, — but are merely redeposited.

But how much may a bank loan and still be ready to meet all demands for cash that come to it? The experience of a

Chicago bank answers this question. This bank loaned \$800 to a retail hardware merchant. The merchant said, "I do not want the actual money, I might be robbed. I will leave it here to 'my credit' and give checks against it." This man, the next week, gave a check to a wholesale hardware dealer for \$400, and a check to a tire company for \$100. Soon afterwards he paid two salesmen each \$50 with checks and gave a check for a \$200 order of cement.

Each of the persons who had received these checks took them to the bank. The wholesaler deposited the entire amount and drew no cash. The cement dealer deposited \$100 and asked for \$100 in currency. One salesman cashed his check, while the second placed his on deposit. The tire company took \$50 cash and deposited the balance. Thus the bank in making a loan of \$800 found that it was asked to pay out only \$200 or 25 per cent of the loan. Long study in making loans has taught bankers that this case illustrates a general condition. Bankers have found that, if a reserve in cash from, say, 10 per cent to 25 per cent as large as the amount of loans is kept on hand, they can meet all demands. A bank which has \$100,000 in cash can, therefore, loan \$400,000 at least and often as much as \$1,000,000, and be safe. The bank makes its profits, of course, from the interest it receives.

The bank needs to be as certain as possible that any loan it makes will be paid back at the proper time. Bankers are, therefore, usually very careful in making loans. Below is a list of matters which banks commonly investigate before granting loans to a business man.¹

Pertaining to Character of Borrower

- (a) Record for honest dealing.
- (b) Personal habits.
 1. Church affiliations.

Pertaining to Character of the Business

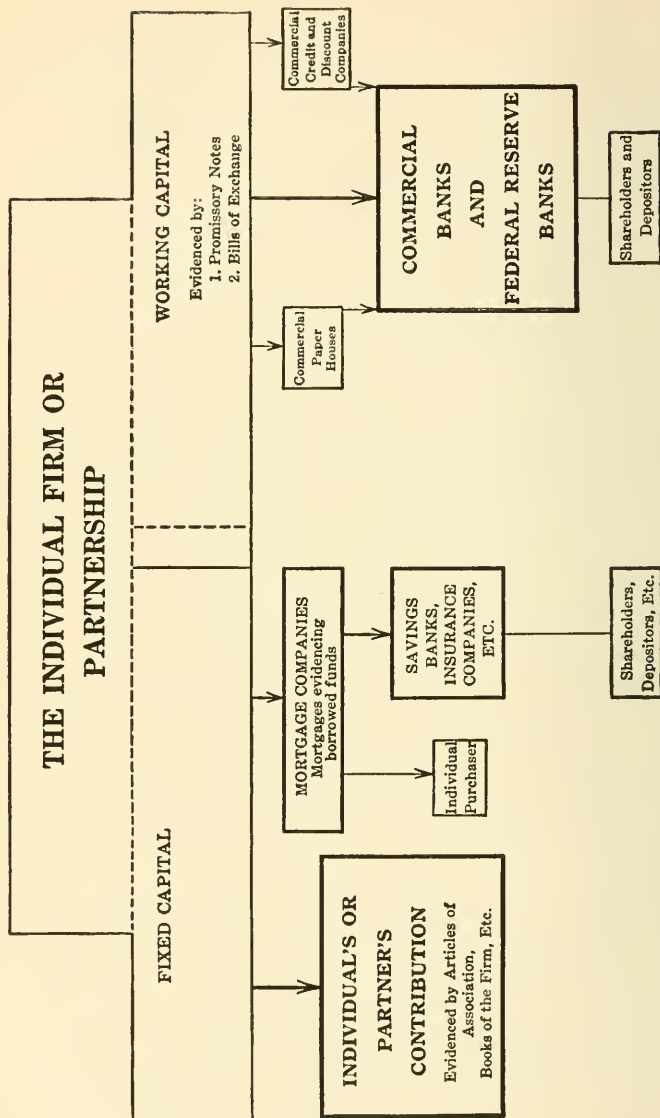
- (a) Ratio of quick assets to current liabilities.
- (b) Amount of capital invested and proportion owned.

¹ H. G. Moulton, *The Financial Organization of Society*.

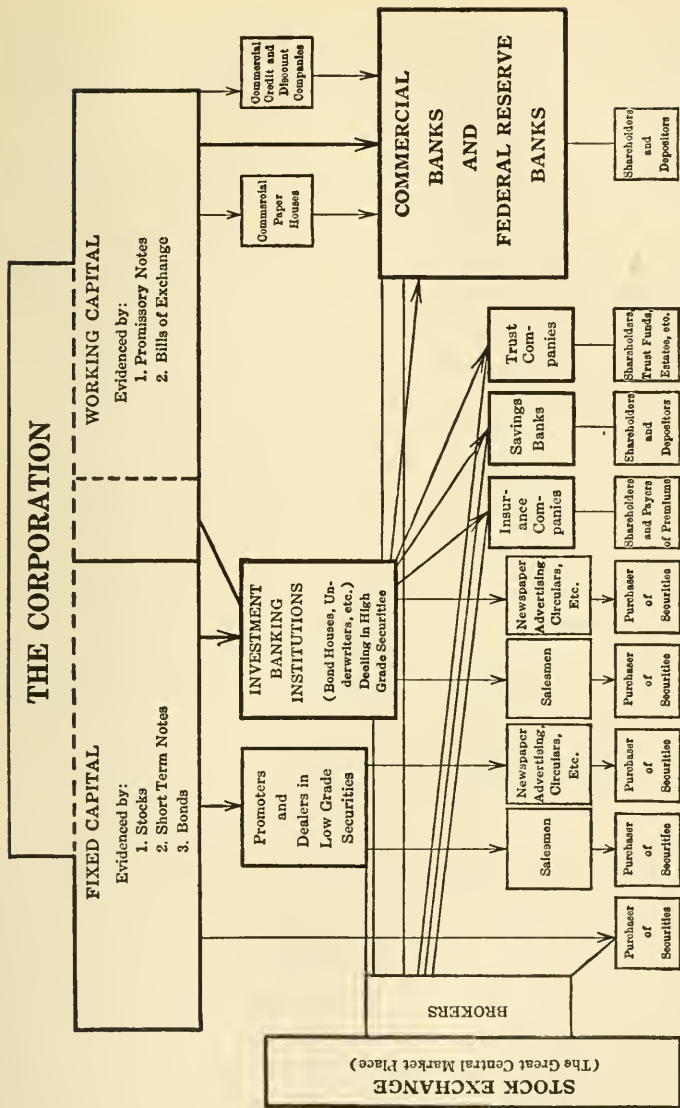
- | | |
|--|---|
| 2. Gambling and drinking tendencies. | (c) Character of stock of goods. |
| 3. Political ambitions. | (d) Rate of turnover of stock. |
| 4. Style of living; wife's social ambitions. | (e) Location of business, and character of competition. |
| | (f) Insurance carried. |
- (c) Reputation for ability.
1. Common-sense and shrewdness.¹
 2. Age and general experience.
 3. Success in this line of business.
 4. Success in other lines of business.

A financial structure serves the need for working capital. — The right-hand sides of the diagrams on page 362 and page 363 illustrate how an individual firm, a partnership, or a corporation may resort to financial institutions to get working capital and how *finally* the dependence is upon the funds of shareholders and depositors. The introduction into the diagrams of the commercial paper houses and the commercial credit or discount companies need not be confusing. Commercial paper houses, for the most part, operate as “brokers” who “bring together” the bank and the business man. Commercial credit or discount companies, aside from the fact that they do not have “depositors,” operate in furnishing working capital much as do commercial banks. Very frequently they borrow from the commercial banks as a means of getting part of the funds they use.

Fixed capital (and some working capital) secured through investment institutions. — If a manager has not sufficient funds of his own and does not wish to wait for the slow accumulation of earnings in order to expand his business, he may resort to financial institutions to get funds for his fixed capital also. In this work also, certain paper devices, stocks, bonds (see p. 281), short time notes, and mortgages, are evidences of the transactions. The left-hand sides of the diagrams on page 362



From H. G. Moulton, *The Financial Organization of Society*, by permission of the author and the publishers, University of Chicago Press
 SOME WAYS BY WHICH INDIVIDUAL FIRMS AND PARTNERSHIPS SECURE FUNDS



From H. G. Moulton, *The Financial Organization of Society*, by permission of the author and the publishers, University of Chicago Press

SOME INSTITUTIONS WHICH FURNISH FUNDS TO CORPORATIONS

and page 363 show through what institutions these paper devices pass and the persons upon whom rests the final dependence for the funds. It will be sufficient for our purposes if we trace some of the more significant features of the process in the case of the corporation.

Let us suppose that a corporation which has been operating successfully for some years wants half a million dollars to build an addition to its factory. One way in which this may be secured is by the issue and sale of additional stock or bonds (see pp. 281-285). To advertise these securities the company may publish a booklet — usually called a *prospectus*. In this prospectus the past success of the company is stated, the prospects for the future are set forth, and the place, and price at which the new securities may be obtained are indicated. The prospectus is mailed to a large number of persons who possibly have money for investment. Usually, however, a corporation does not attempt to sell its new issues itself. The officers of the company go to a broker, — that is, a man who specializes in selling securities and who has on hand lists of persons who are likely to make investments of this sort — and ask him to sell the stock. The broker usually mails out a prospectus such as has been described above and frequently sends out salesmen who attempt to sell the new issues to investors. Magazines and newspapers, especially those which are read by the more wealthy classes of people, are often used to advertise the new issues.

Sometimes the corporation takes its new issues of securities to banking companies (investment banks) which make a specialty of this kind of business. These investment institutions may buy the securities outright and then sell them to others, or they may take them for later sale, guaranteeing the corporation a certain price, or they may handle the matter upon some other basis. In any case, they are middlemen in just the same sense as is the wholesale hardware dealer who sells his wares to retailers. They have lists of customers who have money to invest in securities just as a grocery store has a list

of customers who buy its goods. Among these customers are private individuals, business organizations such as partnerships and corporations, insurance companies, trust companies, and savings banks.

One might wonder how the savings bank secures money to invest in corporation bonds. The savings bank invests in part its own money and in part the money of its depositors. Many persons who never think of buying bonds deposit money in savings banks for three or four per cent interest. The savings bank takes these deposits and purchases bonds on which they receive five or six per cent. The difference in these rates of interest is a source of profit for the savings bank. One reason why many people put their money in savings banks at three per cent interest instead of buying bonds is that they do not trust their own judgment in selecting investments. They know that the savings bank is usually safe. The savings bank thus acts as an agency for many people in directing their savings to safe channels and gives them a service which they could not render themselves.

Insurance companies, as we have learned in an earlier lesson, collect premiums from a great number of people and from the total of these pay certain financial losses which some individuals incur. With these premiums, the insurance companies make large purchases of securities, — generally bonds. This is only another way of saying that business corporations secure funds from insurance companies. It is not difficult to see that in this way the insurance companies earn an interest with the money which is put in their hands. It is also easy to see that the insurance company and bond houses act as financial middlemen, bringing the borrowing corporation into touch with the funds of the individuals who pay insurance premiums.

Trust companies perform many tasks in our society. Among other tasks, they administer funds placed in their care "in trust" for others. They of course wish to invest these funds and one way of doing so is to purchase corporate securities, thus serving

as a means by which corporations can tap the financial resources of those with whom the trust companies have dealings — shareholders, trust funds, estates, etc.

The placing of the stock exchange on the diagram does not mean that corporations can sell securities, “to” the stock exchange. Stock exchanges, which exist in most of our important industrial and commercial centers, are simply market places where buyers and sellers of securities meet. They are not fundamentally different, either in organization, or purpose, or results, from the grain and produce exchanges with which we are already familiar.

These exchanges formulate their own rules concerning the securities which may be bought and sold on the exchange. Corporations must go through certain formalities and establish certain facts concerning their business before their securities may be traded in on the exchange. When they are admitted, it is said that they are “listed.” The securities of our best known and larger companies are generally listed in these organized markets, although some important companies have not thought such listing worth while. In New York there is a market formerly held out in the open street (hence called the *curb market*), which deals with some of these unlisted securities. The term “curb market” has been extended to include telephonic and other transactions by agents and brokers in these unlisted securities.

These organized exchanges are, in the main, very useful, productive institutions. They make investment and withdrawal from investment easy, since here is a place where every one may, through the agents or brokers, buy and sell; they bring to a focus all available information concerning their corporate securities, just as the produce exchanges do for produce, and thus enable every one to have access to expert judgment on the value of securities; they thus serve as a sort of measuring agency by which society can tell what businesses and what lines of business are in demand, and to which accordingly, social resources may profitably be directed.

Financial organization very useful in production. — The foregoing pages and especially the diagrams on pp. 362, 363 give us a picture of some of the financial devices and financial institutions used in our society. The picture is incomplete; it is designed to show only certain aspects of our financial structure; it is a fragmentary sketch. No mention was made of the mint, the government treasury, farmers' loan banks, coöperative financial institutions, pawn brokers' establishments, and others. Incomplete as it is, however, the picture enables us to see something of what is called *the financial organization of society*.

Our discussion of the subject has probably convinced us that this financial organization is very useful to the modern business manager. But is this banking and credit system ("credit involves getting something now and paying for it later")¹ worth while from the broad social point of view? Does its presence enable us to gratify our wants more easily and more fully? Is it a vital part of modern industrial society, — a part which performs useful functions? The answer is distinctly in the affirmative, but there are so many persons who think of our financial organization as a nest of toll-takers from industry (not to say pirates preying upon industry), that it is worth while to state the reasons for the affirmative answer.

We have seen (see Studies IX–XII) the gains we derive from our society being made up of specialists. We have seen that it is essential that these specialists be knitted together into a producing mechanism in which productive resources are apportioned to the desires of society. The bankers and the other persons connected with our financial organization are "functional middlemen" (see p. 144) who aid in this process.

To begin with, they facilitate exchange. There is a long and interesting history back of our modern facile exchange. First there was the crude form of exchange we call *barter*. Then came "mediated" exchange where the medium, or go-between, money was used (see p. 199). Next, through long generations

¹ H. G. Moulton, *The Financial Organization of Society*.

we slowly learned our lessons concerning the importance of a "good" system of money. While learning these lessons we came to realize that even money exchange is sometimes slow and clumsy and there gradually came into use "orders for money" (for example, the check), and institutions (banks) which served as clearing houses for these orders. Our account of the work of the commercial bank (see p. 358) showed this system in operation. The system facilitates exchange, makes the marketing processes more effective, and therefore facilitates the coöperation of modern specialists.

The benefits are not confined to a more ready exchange of the ordinary goods which we consume, important as that is. There is, in addition, a better organization of what we ordinarily call *production*. Very frequently there are people with surplus funds (and we know that funds command productive resources) who do not wish to engage in production themselves, either because of preference or because of lack of training. These surplus funds, whether large or small, are gathered up by our financial organization and are made available for our enterprisers who see opportunities for engaging in profitable production (see p. 327). This is a valuable service even in the case of small businesses and it is even more valuable in large ones. It is doubtful, indeed, whether we could have large-scale production with all its advantages if it were not for our mechanism for transferring funds to those who require them. Certainly, this mechanism facilitates large-scale production in the cases where that has been established to be an effective form of production.

Since the extent to which specialization may wisely be carried depends in large part (see p. 198) upon the effectiveness of our coördinating devices, it follows that our financial organization, by facilitating exchange and by assisting production, "makes possible the extreme specialization which is the chief source of the material wealth of modern societies. It is therefore fundamental to modern industry, in the same way and to the same degree as are the means of transport; it developed as

they developed, and, though its working is not so obvious as are bridges, embankments, and docks, it is as important.”¹

It is not difficult to see that these financial devices and institutions greatly facilitate the apportionment of our productive resources to the wants of society. They enable an assembling of funds and then a ready flow (and these funds command productive energy) to the enterprisers who seem likely to supply society's wants successfully. The managers of these financial institutions are, of course, in a strategic position but they cannot wisely be arbitrary in the matter. They make their gains by correctly gauging what it is that people will pay for; and what industries will therefore be profitable; and what managers will be able to repay loans; and thus to what enterprises funds can safely be apportioned.

PROBLEMS

1. “The business manager is not the only person who uses the institutions connected with the work of the pecuniary unit.” Name some of these institutions. Who else uses them?

2. Write out a definition, with illustrations, of working capital; of fixed capital.

3. Make a list of the ways in which the business man can secure funds for carrying on the business.

4. “I am a retailer of general merchandise. I buy on November 1, \$3000 worth of goods for sale during the holiday season.” For how long a period of time ought my promissory note to the bank run? Why?

5. “I am a farmer and I buy farm machinery costing \$500 with which to grow and harvest my crops.” For how long a time should the note to the bank run?

6. What will be the result if I show bad judgment in deciding how long my note ought to run? What is the form of note which the bank will want?

7. When a man puts a note in the bank he is sometimes asked to get it indorsed. What is an indorsement? Why does the bank ask it?

¹ Clay, *Economics for the General Reader*, American edition, p. 194.

8. Banks often make loans where they require the borrower to deposit some collateral security with the bank, in addition to the promissory note. What is collateral security? Of what is it composed?

9. Henry T. Crouch of Erie buys \$1275 worth of wheat from T. C. Craig of Detroit.

(a) Suppose settlement to be effected with a wheat bill of exchange (also called a sight draft) and write out the substance of the bill which would be used.

(b) Suppose settlement to be made with a check. Write out a facsimile (in substance).

(c) Suppose settlement to be made with a bank draft. Write out a facsimile (in substance).

10. Find out from the financial statement of some local bank with which you are familiar how they have used their funds. What percentage has been invested in short-time promissory notes? What percentage has been invested in stocks and bonds?

11. From this financial statement find out how much cash reserve this bank has in proportion to its deposits. Suppose that a bank has \$500,000 of cash on hand. How much may it safely lend?

12. It is sometimes said that a banker is in a position to control the business of his community through his control of the purse strings. He can make or break any business man. Do you believe that this is true? Can a banker misuse his power with safety or would he lose in the long run if he did not treat everybody fairly?

13. A business man recently complained, "It is the banks that keep me from making a fortune. I am never able to secure funds enough to finance the ventures which I wish to start." Do you think the banks may be working for his best interests in refusing him extensive credit? For society's interest?

14. Does it seem to you reasonable that a bank contemplating making a loan to a business firm should inquire into the financial standing of the firm; into its past history; into the reputation of the owners and managers; into the way in which the business is conducted? Why, in each case?

15. Enumerate the services performed by the commercial bank.

16. Define a commercial bank, a savings bank, a trust company, and a bond house. Some banks do several different kinds of business. Why?

17. "I am a manufacturer. I need \$5000 with which to enlarge my factory." For how long a time do you suppose a bond issued for this purpose might run?

18. "The savings bank and the insurance company develop thrift." What does this mean? If true, what is its significance?

19. What is a stock broker? What advantages to a corporation are there in using a broker for selling new shares?

20. "The corporation, the bond house, the stock exchange, savings banks, and insurance companies unite in assembling capital for modern business enterprise." How?

21. Show in what ways each of our financial institutions contributes to making available a greater quantity of goods to apply to human wants.

22. Does the pawnbroker conduct a financial institution? Does the government maintain any financial institutions?

23. What is meant by book credits? checks? promissory notes? drafts? bills of exchange? the bank note? bonds? stocks? mortgages? public credit? personal credit? mercantile credit? industrial credit?

24. Is there any reason why you should prefer to put your money in a savings bank rather than invest it in bonds offered by a bond house?

25. Where would you be able to sell securities which you own if there were no such institution as the stock exchange?

26. Do you suppose that large investors are guided in their investments by the quotations of stocks and bonds on the exchanges? Can you see any social importance in this?

27. Watch the financial page of a daily paper for a few days and find out what general movements take place in the stock market. Watch, also, the number of sales and price movements of some one stock, for instance U. S. Steel, Common.

28. A man recently proposed to a friend that the friend subscribe for stock in a corporation which was being organized. The friend replied, "I believe this is a good proposition. I have \$10,000 to invest but I may need it for other purposes within a year or two. I cannot therefore subscribe for this stock as I do not wish to have my money tied up." What is the proper reply to this statement?

29. How does the stock exchange make investment easy? How does it bring to a focus information concerning corporate securities?

30. What is meant by saying that the stock exchange is a sort of measuring stick for finding out to what kinds of enterprises social resources may profitably be directed?

31. "The stock exchange contributes to a closer adjustment of production to consumption; of the world's work to the world's need." Explain in detail how it contributes to this end.

32. Some of the alleged advantages of credit are that :

(a) It utilizes small savings.

(b) It furnishes a strong motive for saving.

(c) It transfers capital to more productive uses.

(d) It offers to persons of recognized capacity, but without adequate means of their own, an opportunity to engage in work for which they are fitted.

(e) It makes possible great enterprises.

(f) It saves social energy by providing a cheap medium of exchange.

Some of the alleged disadvantages are that :

(a) It may promote extravagance.

(b) It may transfer wealth to less productive hands.

(c) It may overstimulate prices.

(d) It may make unsound speculation easier to accomplish and may result in crises.

Explain how credit may produce each of these alleged effects.

33. "Our financial devices and institutions greatly facilitate the apportionment of our productive resources to the wants of society." Explain.

34. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 304-310, Selections 120-140.

Bureau of Education, *Lessons in Community and National Life*:

Series A, Lesson A-21, Moulton, "Borrowing Capital for Modern Business."

Lesson A-22, Moulton, "The Commercial Bank and Modern Business."

STUDY XXI

THE TASKS OF THE BUSINESS ENTERPRISER IN MEETING RISKS

PURPOSES OF THIS STUDY :

1. To survey some of the risks that exist in modern speculative society.
2. To observe some of the devices that are used in meeting these risks.

Since we rely so largely upon individual initiative of organizers to bring about a "good" apportionment of society's productive resources, and since the organizers play such a large part in our economic system, it is worth while for us to get a view of the risks they meet and how they meet them.

Some risks arise from natural causes. — Easily understood by every one are the risks coming from so-called "natural" causes such as storms, earthquakes, fire, and disease. These risks would appear in any form of society. They were present in the medieval manor; they are with us to-day; they would exist under communism or socialism. Man can only develop devices to enable him to predict them and prepare for them as well as may be, to control them as far as possible, and to soften their blows upon the individual by some form of insurance.

Many of these so-called natural risks would cease to be risks, or would at least be milder risks, if the business organizers were informed of certain natural laws. For example, a stock raiser owns much capital in the form of cattle, swine, and horses. All of these are subject to disease. A farmer's drove of hogs is frequently attacked by the cholera and in a few days or weeks none are left alive. Black-leg may attack his cattle and leave him with a serious loss. Such capital losses are largely matters of his ignorance, for knowledge of how to cope with such

situations, in a measure at least, is available. Socially, of course, this is a serious matter. It is upon the crops of the farmer, and the herds of the stock drover, that we depend for food supply. If these are lost, society suffers, no matter if the individual concerned has been protected by some form of insurance.

Changes in consumers' wants mean risks. — In addition to these "natural" risks there are risks growing out of the nature of modern business activity and modern economic society. There are, for example, the risks arising from changes in consumers' wants. Men invest their money in business to satisfy people's wants and in hope of making a profit. They build stores and factories, purchase machinery and tools to make the goods which people demand, but when people's wants change, especially if the change comes suddenly, the business venturer is likely to suffer a loss. Changes in fashion are perhaps the best illustration of quick changes in people's wants. A milliner may buy a large stock of hats for a given season. These are capital. If she does not succeed in selling them during the season they are in fashion, they become a drug on the market, as the desired mode is likely to be quite different the following year. Style, or fashion, has very much to do with the hats we want, with the clothing we buy, the shoes we purchase. It dictates the kind of cloth, the cut, the lining, and the design that is used in nearly all our articles of apparel. These quick fashion changes in certain wants cause risks to confront business men who are attempting to satisfy them and make it a highly speculative venture to own many of the goods themselves, or to own much capital which can be used to make only such types of goods. The attempt to reduce such risks causes merchants to advertise "overstocked sales" and "after-season sales." These sales are efforts to "unload" before a change in style makes the goods worthless.

People's wants often change from other causes than fashion's dictates. For instance, an unusually warm winter or a cool summer may bring failures to merchants who have overstocked

their shelves with goods which usually sell, and to coal and ice dealers who find no demand for their wares. In other words, "natural" causes often explain the fact that the consumers' wants are different from what might reasonably have been expected.

No matter what may explain a change in the consumers' wants, the change is likely to mean a loss to the risk-taking business man concerned. This is pretty certain to mean a loss to society as well in the sense that labor and materials have been apportioned to an enterprise that society has ceased to care for. Very frequently it is not possible to shift these social resources to meet society's new wants, without loss in the shifting process.

Risks caused by changes in methods. — Changes in methods of production and marketing may readily mean losses. Men devise new ways of doing things. New tools are invented, new machines are made, a new transportation system is planned which is superior to the old one. Machinery, tools, factories, and transportation lines which have cost a great deal of material and effort sometimes become a total waste, useful only for the junk pile, as a result of changes in methods. For example, when the power looms for weaving were invented, the hand looms used by the weavers in England and other countries, which were valuable capital until the new method was invented, were of little use. These forms of capital goods went to the scrap pile or the kindling box or the attic, to be kept as relics of by-gone days. A new machine technique in weaving had replaced the old capital. When the automobile was perfected, many of the factories which had been used to make carriages and wagons became of little value. Some wagon factories went out of business, others remodeled and reorganized their equipment to make automobiles. They could no longer use it at a profit in manufacturing horse-drawn vehicles. It is declared that when the Suez Canal was built, sailing vessels of more than two million tons' capacity, that formerly made the trip to India around the Cape of Good Hope, were not adapted

to use on the new route and their value fell greatly. A change in method had made these old forms of capital less useful.

Such changes may result in losses for persons who had nothing to do with the change. For example, it is said that when the large mail order houses, such as Montgomery, Ward and Company, and Sears, Roebuck and Company, grew up they caused serious losses to many storekeepers in small towns. The wholesalers from whom these local stores purchased goods, the manufacturers from whom these wholesalers purchased, as well as those banks with whom these concerns transacted business suffered also. There is nothing new for us in such a story. It is merely another illustration of the development of new processes and of new forms of organization through the competitive struggle of the enterprisers who undertake to guide the apportionment of society's resources.

Risks caused by industrial disputes. — Factories, machines, railroads, wharves, ships, and other capital goods are often idle because of the inability of their owners and the workers to agree. In normal years these strikes and lockouts may number in the United States alone from two to three thousand, affecting from eight to fifteen thousand establishments and half a million workers.

Risks growing out of the interdependence of industrial society. — We have seen repeatedly that our modern method of producing goods is one involving specialization, coöperation, and interdependence. This interdependence exposes our risk-takers to some very serious problems. What happened to a certain cotton planter well illustrates this matter.

This Mississippi cotton planter had for years raised cotton at the cost of about nine cents per pound which he sold to a "local buyer" in a near-by town. The local buyer in turn sold it to a New Orleans agent of a New York firm, and finally it reached the cloth manufacturers of England, France, or New England.

In 1914 while this planter was going about his tasks in the usual way events far from him were shaping themselves in

such a way as to make much that he had spent for tools, labor, and seed profitless. Late in July of 1914 the great World War began in Europe. In consequence, English, French, and German merchants refused to buy new supplies of cotton cloth. They did not know how the war might affect their customers. Some would be at the front, others out of work, and all would be economical in their purchases. As a result, cloth manufacturers in Europe did not order cotton from the exporters in the United States. Naturally, the exporters would not buy a great deal of cotton from the local buyers in the cotton districts. Almost as soon as the cotton planter heard of the war he learned that the local cotton buyers were offering a lower price for cotton. During the following weeks the price fell lower. At times, buyers refused to state any price. Finally, however, near the first of December this planter was able to sell his cotton at a price of six cents a pound. Instead of making the profit that he had anticipated, he sustained a loss of three cents for every pound of cotton he raised.

No one in particular was to blame for the losses of this planter. They grew out of the fact that he was producing for an "unknown" market. His success or failure depended upon factors over which he had no control.

These factors affected many others besides this planter. When the price of cotton fell, the storekeepers in the cotton belt knew that the planters would be unable to buy the usual amounts of clothing, shoes, and other necessities and luxuries. As a result they refused to purchase goods from manufacturers. One Chicago shoe salesman who usually spent two months taking orders from Southern storekeepers covered the territory in two weeks. Many merchants in the South failed in business, and as they could not pay their bills, their creditors — banks from which they had borrowed and merchants from whom they had bought goods — were in some cases forced into bankruptcy. Factories in turn from whom merchants purchased found business dull and in some instances closed their doors. Thus there spread over the South, and extended to many businesses in the

North, a condition that is called a *business depression*. Manufacturers, banks, farmers, and merchants were all affected. Yet they were in no way to blame. The cause lay in the fact that they were specialists and were dependent on other specialists. All being interdependent, the disturbance had spread rapidly to all of them and brought with it ruin and loss.

Sometimes such business depressions are much more severe and affect the entire country. Thousands of factories close their doors, allowing the machinery which they contain to lie idle. Railroads having few goods to carry, are not used to anything like their full capacity. All of this, of course, represents a great waste. The factory buildings and machines — which are capital — produce nothing and deteriorate while idle. The railroads wear out almost as fast when not in use as when traffic is being carried, and thus there is a waste of capital when they are not used to the limit. These depressions sometimes last for months and even years before the readjustments come which again call for the use of all the capital which society has built.

Technological industry increases risk. — The risks arising from the foregoing causes are the more difficult to meet because of the technological character of modern industry. In these days, money is invested in fixed or specialized capital such as machinery, railroads, and buildings. This means that productive energy has taken a form which cannot be changed without waste and loss. A knitting machine, for example, can be used for but the one purpose. If not used for that, it must stand idle. If the idleness continues for a long time, it will certainly deteriorate and perhaps ultimately it must be scrapped. This means a loss to the owner and a waste to society in that there are unused resources. If these capital goods could be shifted readily to another use, the loss would not be so great, but this is not possible with highly specialized productive instruments. The cloth manufacturers of England and France in the case just mentioned realized this to the full. In building their factories, they had made capital investments. When no orders for cloth

came, their machines and buildings were idle. Also, the cotton exporting companies in New Orleans and other cities had built up the trade connections of their business. They had established offices in this and other countries; they had installed furniture, telephones, and workers. They found that their great organizations had now little work to do. Heavy losses to the owners were the result. Nor was society gaining from this idle capital and organization.

Risks reflected in business failures.— This list of the sources of risk is surely an impressive one and is indicative not only of the difficulty of the task of the manager in modern society, but also of some of the wastes which occur in our productive resources. Think, for example, of the waste of capital alone. It is impossible to add together the various losses of capital which are caused by all of the risks which we have studied. How much capital is wasted through being idle, how much as a result of changes in wants, how much as a result of seasonal fluctuations, how much as a result of interdependence, it is quite impossible to compute. Nor is it easier to determine how much capital society has lost in the process of gaining by new methods of organization, or by new methods of technique. We can, however, realize easily that the total losses are severe.

One indication of the serious risks involved is the number of business men who fail each year. R. G. Dun and Co., an organization which compiles such data, give the following statement concerning business failures in the United States in recent years :

YEAR	NO. OF FAILURES	NO. OF BUSINESS CONCERNS	PER CENT OF FAILURES
1918	9,982	1,708,061	.58
1917	13,855	1,733,225	.80
1916	16,993	1,707,639	.99
1915	22,156	1,674,788	1.32
1914	18,280	1,655,496	1.10
1913	16,037	1,616,517	.99
1912	15,452	1,564,279	.98
1911	13,441	1,525,024	.81

The Bradstreet Company makes an estimate of the causes of failure, which, while necessarily inadequate and open to criticism, nevertheless throws an interesting light on our discussion of the forms of risk:

A. DUE TO FAULTS OF THOSE FAILING (74-86% of total)

- Incompetence (irrespective of other causes)
- Inexperience (without other incompetence)
- Lack of Capital
- Unwise Credits
- Speculation (outside regular business)
- Neglect of Business (due to doubtful habits)
- Personal Extravagance
- Fraudulent Disposition of Property

B. NOT DUE TO FAULTS OF THOSE FAILING (14-26% of total)

- Specific Conditions (disaster, war, floods, etc.)
- Failures of Others (of apparently solvent debtors)
- Competition

Since institutions develop to meet needs, we should expect to find that there are various institutions and devices designed to be of aid to the manager in the risks he takes. And this is actually the case.

Advertising may lessen risks of the entrepreneur. — One very important method which is used by manufacturers and merchants to do away with the risks which come from the changes of people's wants is advertising. By advertising business men can in a large measure control people's wants. They set the fashion for us. They make us desire clothes of the cut which they manufacture, talking machines of the sort they sell, and automobiles of the style they make. In so far as the advertiser can cause people to want what he offers to sell, he is lessening the speculation and risk that come to him from changing wants. In so far as the advertiser can control wants, he can tell with greater accuracy the amount of capital which he will need to supply wants, and thus he will be less likely to waste capital by having an oversupply. Of course, it does not always follow that the welfare of society is promoted by advertising. Un-

worthy wants may be developed; a poor quality of goods well advertised may drive out a good quality which is not advertised. Or by advertising our wants may be changed so frequently that much fixed capital and many old methods become useless.

Risks are reduced through speculative contracts. — During the first year in which America participated in the Great War, a Michigan ship-building firm received a government order for ships. The order was so large that the firm had to increase its yards and this would take several months. They did not wish to buy all the necessary lumber in advance and store it until needed, but if they did not do so, they faced the possibility of a rise in the price of lumber which would eat up the profits in their government order. To insure themselves against this, the ship-building concern made a contract with a large lumber producer in which he agreed to deliver them from time to time the grade and quality of lumber desired *at a specified price*. He took the risk connected with a possible rise in prices. Thus by a contract the ship-builders secured themselves against loss. They reduced their risk involved in building their new plant.

Or, take another illustration. Suppose that a contractor agrees to build a house for you for \$15,000. It would seem at first that he assumes all the risks of securing lumber, cement, stone, brick, plaster, and other building materials. As a matter of fact, he contracts himself out of all of these risks by making contracts with other persons to furnish them. One might argue that the total risk involved is as great as it was before; that it has simply been passed from the contractor to others. This is not true, however. The men who now assume the risks are each specialists who know much better than the contractor where the supply of these goods is to be found and the prices that should be paid for them. The total risk is, therefore, less than if it were assumed by one non-specialized man.

Hedging operations are speculative contracts. — Probably the speculative contract reaches its highest development in the "hedging" operations of the Board of Trade. The Board of

Trade is a market where buyers and sellers of grain, cotton, and similar goods trade. They buy and sell either for immediate delivery, or for delivery some time in the future, and their services are often used by persons who wish to avoid certain risks. Suppose a miller buys to-day for immediate delivery 10,000 bushels of wheat which he expects to grind and have ready to market as flour two months hence. If now the prices of wheat and flour should fall considerably in these two months, the miller would lose heavily. Of course, if the prices should rise, he would make gains. The miller is no gambler. His business is that of grinding wheat and not that of speculating on the rise or fall of the price of his raw material. Accordingly, he "hedges" on his raw material costs. Through a broker on the Board of Trade, he sells another 10,000 bushels of wheat *which he does not own* (in the language of the market he "sells short") agreeing to deliver three months hence. What he has really done is not *sell* as we ordinarily think of the term, but *contract to deliver* in the future. When the three months have passed, he buys 10,000 bushels and makes delivery. If wheat prices have risen, he loses on his wheat "deal" but this loss is offset by the corresponding rise in flour. If wheat prices have fallen, he gains on his wheat deal but loses by the corresponding fall in flour. He thus frees himself from the risk of price movements in his raw material and confines himself to his "manufacturer's profit." Such operations are very common.

Some risks may be met by insurance. — Of the many methods which have been devised to lessen risks, and especially the risks of capital, insurance is one of the most important. Large companies have been formed which make careful calculations concerning the chances of losses from various causes. On the basis of their calculations, these companies take small payments called *premiums*, from a great number of persons and from the total of these repay losses that occur to any of the insured. By means of insurance, business men may now largely eliminate their financial risks that come from fire, wind, rain, hail, lightning, theft, wreck, accident, illness, and death.

Of course when capital goods, such as a factory, are destroyed by fire, the fact that the insurance company pays the owner somewhere near the worth of the factory does not replace it. Before the fire, society possessed a factory; now it is gone. It is sometimes argued, therefore, that insurance does not lessen risks but merely passes them from one person to other persons; merely distributes them from one person to a group. This is true, but there is a sense in which insurance does lessen risks by diminishing the waste which comes from the destruction of capital. A factory which burns, for instance, may be the only property of its owner. If he is impoverished, he cannot rebuild; his employees are out of work; the industries which depend upon him for materials are not supplied, and the industries from which he purchased will find one of their customers gone. The loss of his factory, if it is not immediately rebuilt, will, therefore, cause a serious dislocation and unstabilizing of business. Insurance which gives him, immediately, money enough to rebuild his factory lessens the business dislocation and decreases the shock. In this steadying influence of insurance lies its greatest function as a reducer of risks and wastes.

Increase of knowledge lessens risks. — Many of the difficulties of the enterpriser arise from his inability to foresee and make provision against what the future may have in store for him. It follows accordingly that the increase of knowledge is one of the most fruitful ways of diminishing risk.

Many institutions and devices have grown up to aid organizers in estimating future situations. Some of these are useful to almost every business. Some are most useful to men who are interested in making new capital. Some are of importance to organizers who are producing food and other consumers' goods. Some of these agencies have been organized by the government. Some have been built up by individuals who saw a profit in providing organizers with the information they wished. Still other mechanisms for information gathering have been devised directly by the men who wanted this knowledge. It is not possible for us to do more than examine the

work of a few of these agencies, such as the Board of Trade, government crop reports, the consular service, commercial agencies, business research agencies, trade journals, and engineering schools.

The Board of Trade performs services. — The Board of Trade, being an association of buyers and sellers, maintains an information service. Private agencies use telegraph, telephone, cable, and mail to center at the Board of Trade a world-wide information service, concerning the commodities in which its members deal. This information becomes available for the use of all and is of great importance not only to these dealers, but also to farmers, millers, exporters, and many others.

The following quotations show the sort of information which reaches the organized grain exchanges. They are taken from what is known as the "broad tape." The "broad tape" is a strip of paper some five inches wide which unrolls from an electrically operated printing machine known as the "ticker." The "ticker" prints upon this strip of paper news concerning crops and other matters which is gathered by a corps of agents, delivered to a central office, and from there transmitted to the "ticker" by electricity and printed simultaneously in all offices possessing a "ticker." A glance at the information on the tape shows how useful it would be.

The use of government crop reports. — A source of information that is very useful not only to farmers but to a great many other business men as well is provided by the national government in its reports on crops. The government crop reports give information on all crops grown in the United States that can be considered of commercial importance. In March of each year the government issues a report which states the amount of grain which is still held on the farms of the country. In April a second report appears which deals with the condition of winter wheat and rye. (These crops are sown in the fall and harvested the following summer.) In May a third report appears stating the condition of winter wheat, rye, and of meadow lands. It also states the portion of the original

The government crop report on corn and oats is around expectations but the total wheat crop is 20 to 30 million below estimates.

The government report fully confirms the many sensational damage reports received during the past few weeks.

Crops in Northwest

Northwestern miller special crop says guesses of best-informed elevator men present conditions run 200,000,000 to 225,000,000 bushels for three Canadian provinces. Black rust reported to be doing some damage in Eastern Montana.

Kansas has 89,000,000 bushels against 96,000,000 last year.

Liverpool Grain Cable

Wheat 2 to $4\frac{1}{2}$ higher.

Corn $\frac{1}{2}$ to 2 higher.

Foreign Crop Summary

United Kingdom — Wheat is now favorable.

France — Wheat not very favorable.

Russia — Complaints regarding the quality of wheat were numerous.

Argentina — Prolonged drought and continued cold. Much replanting necessary.

India — The monsoon has burst and afforded moisture. Agricultural situation satisfactory.

Peace Talk

Berlin advises this morning that preparations are being made for another winter campaign.

BROAD TAPE GOSSIP¹

¹ Sections of the "broad tape" as it came from the ticker in a broker's office in La Salle Street, Chicago.

acreage of winter wheat which promises to produce a crop. The June report is concerned largely with the amount of wheat which has been sown in the spring. In July the acreage which has been planted to corn is reported. The general conditions of all crops is reported until September, when most of the smaller grains have been harvested. The condition of corn is reported in October, and in December appears a report which gives trustworthy data on the total amount of crops which has been harvested.

In addition to these reports the government issues weekly weather reports which tell of weather conditions that are likely to influence crops favorably or unfavorably in any of the grain- and cotton-growing areas. Many careful buyers on the organized exchanges declare that the reports of the weather conditions enable them to anticipate very closely the finally reported condition of crops.

It is not difficult to see that farmers are no more interested in crop reports than are scores of other business organizers. The millers who produce flour must rely on these to estimate the prices which they will pay for grain in the future. The makers of corn products — starch, sirup, flakes, — are also interested in these reports on the conditions of the raw materials which they use. Exporters who are selling grains to foreign buyers watch these reports with the greatest care. The business of railroads depends very greatly upon the amount of grain which they will carry. Business men in the towns and cities who manufacture or sell goods which are used by farmers find their market influenced very greatly by the success which is attending the farmers' efforts to produce crops. Bankers watch the crop reports closely, as their business will be influenced by the conditions in agriculture and in related lines.

What the consular service does. — Many business organizers wish to sell all or part of their goods abroad. What is the demand in foreign countries? It would be difficult indeed for an American business man to ascertain foreign demand for his goods without hiring a large corps of agents. Great aid in

knowing foreign demand is given by a division of the national government known as the "consular service." The government sends to nearly every important city of every country of the world men called *consuls*, who are charged, in part, with the duty of gathering facts and information which will be useful to American business men. If a new railroad is to be built in Japan, information concerning it is valuable to American makers of steel rails, locomotives, and cars, and this fact would be at once reported through the consular service. If a new series of public buildings is to be erected in South America, if new mines are to be opened in Mexico, there is an opportunity for American organizers to sell goods, and it is such information which the consular service gathers and reports.

Businesses furnish information. — Many individuals who have seen how important it is for organizers to have access to information have organized businesses to supply it.

Among such businesses are those which are commonly called *commercial agencies*, such as R. G. Dun and Co. and the Bradstreet Company. The larger part of their business is that of collecting detailed information concerning the credit standing of business men in every part of the country. This information is sold to other business men who wish to ascertain to whom it is safe to sell goods. These commercial agencies also collect a great deal of data on the general business conditions throughout the country, the success which is attending the production of many lines of goods, and the number of failures in various kinds of business. From all this general information the man who is thinking of entering business can form an opinion concerning the prospects of success.

Work somewhat like that of the commercial agencies is also done for business men by statistical companies. One of these companies advertises as follows: ¹

"Yes, your business *is* different. It undoubtedly has features not possessed by most of the corporations that now use *Standard Daily Trade Service*.

¹ This material is taken from advertising literature of the *Standard Statistics Company*.

“But it has this in common with them: it is influenced by basic conditions of labor, production, transportation, finance, and legislation — here and abroad. Whether you wish or not, you are now engaged in World business, and you cannot afford to miss any fact of vital importance to American business men as a whole. All these facts are brought to you every morning by the *Standard Daily Trade Service*.

“What is more, you have only to list with us your special needs for information along any line, and we give you our Personal Service on it without extra charge — and in the strictest confidence. Our experienced staff will be constantly on the watch for any item of fact that bears upon your interests and will send it to you.

“Whether it is economic conditions in China, sugar crop prospects in Cuba, developments in trading-with-the-enemy legislation, or any other item of basic trade fact, small or large, you can rely upon our watching developments as carefully as you would yourself if you had at your disposal all the time and all the sources of information you wanted.”

Quite frequently advertising agencies serve as research bureaus for their clients. The experience of a manufacturer of an automobile horn gives us a good illustration of the way in which those agencies go about their work. Before allowing the manufacturer to advertise his motor horn, the agency concerned undertook a careful investigation.

1. They first determined the possible amount of sales in the country,
 - a. By learning the number of motor cars in the United States.
 - b. By learning the number of motor cycles in the United States.
 - c. By learning the number of motor boats in the United States.
2. They next determined the amount of competition which they would have to meet.
 - a. By learning the number of other factories making similar products.
 - b. By determining the volume of the sales of these companies.
3. The business policies of competitors were next studied:
 - a. Extent of advertising done by competitors.
 - b. Promptness of the service given to purchasers by competitors.
 - c. Determining whether competitors sold through jobbers and dealers, direct to consumers, or how.

4. Several hundred automobile accessory dealers were visited and conferred with concerning the best plan for advertising and marketing the new accessory.

With this information before them, the advertising agency was able to advise the manufacturer more intelligently concerning the advisability of manufacturing the accessory and the best way in which to sell it.

Trade journals. — A business man in nearly any line of business will now find that there is published one or more magazines which are devoted entirely to his type of business. There is, for example, a magazine for candy makers and sellers known as "The Confectioner's Journal." "The National Baker" is concerned with the interests of bakers. "The Modern Miller" devotes itself to matters of interest to flour millers. "Petroleum" talks of nothing that will not interest oil men. The "Midland Druggist and Pharmaceutical Review" is a magazine for men in the drug trade. "The Iron Age" is printed for the steel and iron trade. These magazines which are devoted to special trades are called *trade journals*, and there are now several thousand of them. All sorts of facts, suggestions, and data which are of interest to the business man concerned are printed in these trade journals. New methods which can be used, experiments which have been tried by others, suggestions for advertising, window display, and better book-keeping, — all find places in these trade journals, but in addition to aid of this sort which is given through the trade publications, there is a great deal of information which tells the organizer something of the future demand for the type of goods which he handles.

A business sometimes makes its own studies. — Business men do not, of course, rely entirely on the agencies which the government or other individuals have placed at their disposal. They make their own studies of the situation. Sometimes they use their salesmen as investigators to study the probable future of the market. It has been said that a careful salesman not only sells goods but looks also at the stock

on the shelves, estimates its value and size, forms an opinion of the general character and condition of the business, and of the buying power of the town. All this information is carried back to the "home office" of the manufacturer or wholesaler, and on the basis of it the demand for goods in the future can be estimated. Sometimes — and the practice is growing fairly rapidly — the manager sets up a research bureau within his business to study and report upon conditions affecting the business. Examples will be found in The International Corporation, The Consolidated Steel Products Company, and in many banks.

Science lessens risks. — An account of the diminution of risk through the increase of knowledge would be quite incomplete without a reference to the work of our educational institutions. Take, for example, our schools of technology. In nearly every state in the Union there are now one or more engineering schools. These schools, which train men in science and in the application of these studies to practical affairs, do much to aid in lessening ignorance of natural laws, and thus reduce the losses which flow from that ignorance. For modern factories and modern stores there have been developed "sprinkler systems" which are an automatic protection against fire. Shipwreck takes place less frequently because we have improved the instruments which the navigators use as guides, because careful soundings have been made, and lighthouses have been established. Modern ships are frequently built with compartments, so that a leak, though it fills part of the ship with water, will not disable the vessel. Improved mechanical devices are also used to guard against loss in railroad transportation. Heavier rails and scientifically built road-beds make spreading rails and track washouts less common. Air brakes give engineers control over the capital which is in their charge and "interlocking block systems" have greatly reduced the number of railroad wrecks. Factory buildings collapse less frequently than formerly, because of the improved methods of building. Fireproof roofing materials, burglar alarms, and safety valves

on steam boilers must all be included among the contrivances with which we attempt to reduce the risks and wastes of capital goods. For all of these society owes a debt to the study of science and engineering.

Agricultural schools and experiment stations perform a similar function. These are continually experimenting as to the type of crops which can best be raised on certain soils. They study animal diseases and devise means for curing and preventing their ravages. Such institutions then are very important in the reduction of risks and wastes of capital. They lessen the losses due to "natural causes." The work of the weather bureau is of the same order.

One writer summarized the need for agencies which will provide information in the following words :

"The business man must of necessity have a wide vision, for the cable, the telegraph, the railroad, and the ocean steamer have brought the uttermost parts of the world so close together, that the state of the market in New York may depend upon an event in Africa, a famine in India, a revolution in China, a short crop in Argentina, a speech in the English Parliament, a murder trial in Los Angeles, an editorial in a weekly paper in Philadelphia, or an election in Canada."

Any one engaged in business, therefore, must understand how to read the signs of the times, and after bringing together the various facts obtained from every part of the earth, be able to form a fairly accurate judgment as to the course of the markets. In so far as he is able to do this, he is able to reduce the risks of business ; in so far as he fails, he is dependent upon chance like a mere gambler.

The modern business man must know what is going on in the world, and this is true not alone of events in commerce, though that is of prime importance to him, but also of events in politics, events in science, and even events in literature.

We try to reduce risks through social control. — Reduction of risks through social control has already been illustrated in the foregoing discussion, notably in the cases of the crop reporting system, the work of the weather bureau, the consular service,

and the contribution of educational institutions. This means of reducing risks is so important, however, that it deserves particular mention and further illustrations. A great mass of the regulative activities of government (see p. 321) are designed to give *certainty* to business relationships and are therefore properly listed as methods of risk reduction or avoidance. Particularly the actions of the state and federal governments in setting up machinery for the conciliation and arbitration of disputes between labor and capital should be mentioned since we have listed these disputes as an important phase of business risks in our society.

PROBLEMS

1. Give a list of natural risks. Does it appear to you correct to call them risks due to ignorance?

2. What causes can you assign for changes which occur in consumers' wants? Do these changes mean social loss? Do you think the loss sometimes more than offset by gains?

3. The production of shoes begins with the making of machines to make machines to make shoe machinery. Is this statement true or does production begin even farther back? Why does production so far in anticipation of demand mean risks?

4. Did the farmer on the manor take the risks which come from production in advance of demand?

5. Are risks greater in a changing condition of industry? Why or why not? Are risks greater in a wide market?

6. Was market news necessary on the manor? Was it necessary to have agencies to anticipate demand on the manor?

7. When our country is at war our national government buys shoes, clothes, steel, and shells in great quantities. When the war ends, the government ceases to be a large-scale buyer of shoes, clothes, steel, and shells. Are manufacturers who equip their factories to make these goods in time of war taking a risk? Can you see any relation between the risks assumed by the manufacturers and the large profits which they ask under such circumstances?

8. Suppose that the aeroplane should be so improved that passengers in large numbers could make rapid and safe trips from one

city to another. Would the present number of passenger cars be useful? To what cause would you ascribe the junking of passenger cars which would follow such a use of aëroplanes?

9. A store-keeper in a small town recently made this complaint, "Formerly I had a good business; I built a large store. Then the mail order house began to sell goods direct to my customers. Now all this capital of mine is idle and useless." What would you say was the cause of his capital becoming useless?

10. If the mail order house is able to undersell the small store in the local town does it seem to you that society gains by such a new organization as the mail order house? May there be a gain through forcing the small store to use better methods?

11. When new organization makes old capital useless, is it difficult to decide whether the loss of capital is greater than the gain through the new organization?

12. Has there ever been a strike in your town? Did society suffer a loss or waste of capital as a result? Explain how, if you think it did.

13. Suppose you were the proprietor of a store in a small town. If the factories in that town closed would it have any effect on your purchases of goods? Would such closing of factories affect the bank? Explain.

14. Explain why the risks taken by a factory are very large as compared with those of a man who has little "overhead expense." If you buy a share in a railroad that is being constructed, are you a risk taker?

15. Is the boy who spends time and money attending high school and college taking a risk that these expenditures will not prove profitable? Is the boy who does not go to high school and college taking a risk that his work will be less profitable than going to school? Explain. Which of the two boys seems to you to take the greater risk?

16. Could a banker aid in the formation of useless capital? Explain how.

17. Commercial agencies and research companies are institutions which have grown up to fill a need. Have they "grown up" or have they been "cultivated"? If so, then why and by whom? Explain the work done by this type of company.

18. Is our society really more speculative than that of the middle ages? If so, what factors have made it so?

19. By means of advertising a manufacturer can control people's wants. Any method which can be used to control wants tends to lessen the risks of capital. Do these statements seem to you to be true? If true, is this a sufficient defense for advertising?

20. Suppose that you wish to build a house. Are you taking risk if you buy the materials from time to time? How can you lessen this risk by contract? Do you think the dealer or contractor with whom you make the contract is taking as much risk as you would be if you purchased them yourself? Can you afford to pay a profit to a contractor to relieve you of these risks?

21. A certain cotton manufacturer displays great ability in the production of cloth, but he is nevertheless barely able to keep his head above water, because he is a poor judge of the raw cotton market and is more likely than not to buy when prices are too high. Show how he could liberate himself from the consequences of this defect of judgment.

22. Miller Jones always covers purchases of wheat for milling by corresponding short sales. Miller Brown boasts that he is no speculator, and refrains entirely from transactions on the wheat exchange. Whether prices rise or fall, Jones is insured his miller's profit, and never receives more. If prices rise, Brown makes a profit over and above his miller's profit. When prices fall, not only may his miller's profit be wiped out, but he may incur additional losses. Which one is really the speculator?

23. During the Civil War certain wool manufacturers made enormous profits because of the rise in price of raw materials which they had on hand. After the war there were cases where these profits were nearly wiped out by losses consequent upon the fall in prices of raw materials. Explain. Could the loss have been avoided?

24. Speculators are often regarded as mere gamblers. If the whole body of speculators were to cease buying and selling grain, and limited themselves to betting upon the course of prices, would the work of commerce and industry be carried on exactly as it is at present?

25. "The board of trade is one of the greatest insurance institutions in existence." Do you agree?

26. "Speculative contracts do not reduce risks; they simply pass the risks along, and society must face as many and as great risks as would have been the case if no such device as speculative contracts had risen." Is this true?

27. Does insurance reduce risks or does it transfer risks from the individual to society? Just what is the function of insurance in modern industrial society?

28. How can it be said that an agricultural or engineering school is a device which lessens risk?

29. Arbitration boards for settling labor disputes, safety valves on steam engines, city firemen, an umbrella, a burglar proof safe, fire-proof roofing, lightning rods, speculative contracts, and overshoes all have a similar function. Is there any truth in this statement? If so, what function? Could you add others to the list?

30. The importance of agencies to give market news varies with the width of the market. The importance of market news agencies varies with the time element of the market. Explain these statements.

31. To whom are government crop reports of aid in determining business actions? Why could not a farmer get this information as well for himself? Who pays for gathering the information given in government reports? Do you think it fair that a doctor who is a tax payer should aid in paying for the gathering of crop reports?

32. Associations of business men such as a manufacturer's association of a state or locality often publish trade journals. Why should they do this? Why should an individual publish a trade journal? Can you tell from an examination of a trade journal how the publishers make their profits?

33. Suppose that you contemplate opening a grocery store in a town where most of the people work in a factory which manufactures steel. List all agencies which you might use in deciding whether it would be advisable to open the store at all, and in what location it would be advisable to open it.

34. If society does not provide good agencies for gathering market news, there is great chance that social energy will be wasted. Why?

35. Illustrate risk being reduced (1) by increasing our knowledge of the future; (2) by employing safeguards; (3) by insurance; (4) by speculative contracts; (5) by social control.

36. Draw up as long a list as you can of the various devices and structures which have been developed as a result of the speculative character of industrial society.

37. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: pp. 470-473, Selections 178-200.

STUDY XXII

INTERNAL BUSINESS ORGANIZATION AND EFFECTIVE UTILIZATION OF PRODUCTIVE RESOURCES

PURPOSES OF THIS STUDY:

1. To see the great importance to society of good apportionment of resources within business units.
2. To study some of the principles and devices used by the manager in making effective use of productive resources.

Apportionment of productive resources occurs within a business unit. — The last four studies have been concerned with the problem of the apportionment of our productive resources among the various enterprises of modern industrial society. Study XVIII was a general survey of this apportionment, closing with a discussion of the part played by the business enterpriser. Studies XIX and XX showed the part played in apportionment by our pecuniary organization. Study XXI continued this discussion by showing the difficulty and complexity of the task of the business man in his effort to estimate the requirements of the society round about him. Considerably, though not exclusively, Study XXI dealt with the work of the risk-taker in estimating the requirements of "the market" and was therefore mainly a discussion of the apportionment of productive resources *among the various enterprises of the community*.

We shall now take up the enterpriser's work with particular reference to the internal management of his business unit. In turning to this topic, we assume that he has decided that "the market" justifies his producing a certain commodity, — justifies devoting some of society's resources to that particular task. The problem now before the enterpriser is that of deter-

mining the appropriate apportionment of productive resources *within that business unit*. How much land and of what kinds? How much labor and of what kinds? How much capital and of what kinds? How organize the whole? These are some of the questions now facing him (see p. 318). Society is interested in his answers. If they are "correct" answers, society may gain through increased production of want-satisfying goods. If his answers are "incorrect," society loses because of the ineffective adjustment of productive resources.

When individual business organizers so organize their business units that labor or land or capital is wasted, it means a waste of social resources. If a manufacturing plant in New Jersey is employing twenty men more than it needs properly to use the amount of machinery which it has, the work of those twenty men is being wasted. If a manufacturing plant in Chicago has too large an amount of machinery in proportion to the number of workers, a waste of capital results. Clearly, what all of us wish to have brought about is such a condition in every business that there will be just the "right" amount of capital working with the "right" amount of land and the "right" amount of labor. In this way we will secure the greatest amount of goods with the least effort and, therefore, at the lowest cost.¹

Effective adjustment of productive resources greatly increases production. — The saving which can be effected by careful, thoughtful organization is well illustrated by the experience of an industrial engineer who, some years ago, had occasion to find out whether improvements could be made in the organization of the men and implements engaged in brick-laying. His experiments were very extended, but for our purposes we need consider only that part of his study which dealt

¹ The teacher will use his discretion concerning the amount of safeguarding which should here be brought into use against leaving with the student an impression that this is "the best of all possible worlds" and that all business gains are in direct proportion to service rendered society. The text will proceed on the assumption that young beginning students may wisely be shown first the appropriate goals of business activity, assuming sound and effective social control of business activity.

with the problems of building a plain brick wall for a house. The principles which he worked out can be applied to other forms of bricklaying, and, indeed, with proper allowances for changed conditions, to all forms of industry.

It did not take this engineer long to come to the conclusion that he must first of all select his workers, — must get the “right” men for the task. Some men had physical and mental disabilities absolutely debarring them from such work. Others had disabilities which would handicap them severely unless corrected. Still others, physically and mentally able to do the work, lacked training and experience which the engineer felt he could not afford to give them unless it was not possible to secure workers already competent to do the work. It is evident that quite serious management problems confronted him with respect to getting a “fit and fitted” labor force.

In arranging his labor force the engineer did not stop with his selection of bricklayers. The wages of good bricklayers are high, and our engineer saw that in the usual methods of building houses these high-priced bricklayers spent a great deal of time in sorting out from a disorderly pile of bricks the ones appropriate for use in the various parts of the wall. Often, also, the bricks were delivered to the bricklayer in such a fashion that it was necessary for him to turn or “flip” many of them in his hand in order to get them in exactly the right position to apply to the wall. Neither the sorting process nor placing the brick in the right position was a task which required great skill. Either one could be performed by a low-priced laborer. Our engineer made provision that this should be done. The different grades of work could now be performed by workers of appropriate skill.

After this engineer had secured as bricklayers thoroughly competent men and had provided them with satisfactory unskilled helpers, he studied carefully the movements made by them. He analyzed so thoroughly the movements made in laying bricks that he could tell what motions were necessary and what ones were merely waste of time and effort. He saw

also that much time and effort were wasted because the tools in common use in bricklaying were not properly adapted to the operation.

One of the tools commonly used in laying bricks is the mortar board. Upon this board the mortar usually lies in such a thin heap that the worker quickly exhausts the supply nearest him and then finds it necessary to reach a long distance, and sometimes even to take a step in order to reach the mortar on the opposite side of the board. The mortar board seemed to the engineer a poor tool, and he accordingly devised a mortar box or tub. In this the mortar was deep and when the tub was placed close to the worker, long motions and steps could be avoided, for in the deep box or tub the worker could be sure to fill his trowel merely by dipping in.

The elimination of unnecessary motions was facilitated by making certain improvements in the scaffold, which we may think of as another tool. Prior to the investigation of this engineer, it was usual to have a scaffold which was not readily adjustable with respect to height. When the wall was low in relation to the floor of the scaffold, the bricklayer had to do his work in an awkward position. When the wall was high, his position was again awkward. These awkward positions seriously affected his efficiency. Then, too, on the scaffold would be a sort of table with bricks and mortar placed upon it. The height of this table was not always carefully planned. In many cases the workman had to take a step or two, stoop over to pick up a brick, straighten up, and then step back to the wall to lay it, thus using more energy in moving his body than in moving the bricks.

The engineer made a better adjustment. He planned what he called a *nonstooping* scaffold which might also be called a *nonstepping* scaffold. The floor of the scaffold was always at the most convenient height in relation to the height of the wall, and the tables on which the bricks and mortar lay were a definite distance from the workman and from the wall, and always at definite heights. The result was a very considerable increase

in the number of bricks which could be laid in a day without at all increasing the strain on the worker. Indeed, the strain was diminished.

This account of the organization of the factors of production engaged in the making of a brick wall illustrates the importance of proper organization. The whole story of these experiments in bricklaying would show that the industrial engineer brought about a remarkable increase in the productivity of the men, materials, and tools engaged in this work.

Many other careful experiments have been made in business plants to secure proper organization of land, labor, and capital. One man, for example, found by directing a workman how properly to handle bars of pig-iron, four times as much work could be performed in a day with less fatigue than before. Another experiment proved that in so simple a task as shoveling ashes a vast increase in productivity of work could be brought about by a scientific study. In an automobile factory it was found that proper organization enabled a group of men, without any added strain, to produce 50 fenders in a day of eight hours where the same group had formerly made only 38 in a nine-hour day. Business men of late years are becoming very much awake to the savings that can be secured by carefully planned organization within their business units.

Economists approach the problem through the law of diminishing returns. — That losses occur when workmen, raw materials, and capital are not properly adjusted to one another has long been pointed out by economists. Their favorite illustration has been taken from farming. A farmer, for example, wishes to sow a field with oat seed. Let us say that two to two and one half bushels of seed to the acre is the amount which farmers have found to be "right." Seed is, of course, capital. It is easy to see that too small a quantity of seed, for instance half a bushel to the acre, might be inefficient because the strength of the land would not be properly utilized. On the other hand, too large a quantity of seed, possibly five or six bushels to the acre, might be inefficient

because there would not be sufficient nourishment for all the plants which would spring up.

It is just as easy to see that too much labor to a certain amount of land might be quite as inefficient as too much seed would be. Let us say that one man is able with modern machinery to cultivate and care for eighty acres of corn. This may be said to be the "right" amount of labor to apportion to eighty acres of land which is being used to raise corn. If two men were apportioned to the work of caring for an eighty-acre cornfield, they might be able to keep the weeds more thoroughly removed and the corn better cultivated, and thus produce somewhat more corn than could one man. But it is not hard to see that two men could not, by cultivating, produce from an eighty-acre field twice as much corn as one. To put three men to work in the same field would only diminish still further the returns in proportion to the amount of labor expended. The fact that the output under some circumstances becomes less or diminished *in proportion* to the units of one factor of production which are added, is called *the law of diminishing returns*.

For purposes of our present study we need to notice two aspects or phases of this law of diminishing returns. The first of these may be called the *technological* phase. It is this phase which has just been illustrated in the account of the workers in the cornfield. Measured in terms of physical units of labor supplied and in terms of physical units of corn produced there was a diminished (per unit of labor applied) return. But even so it might be wise for the farmer to operate his cornfield in this way. In other words, there is a *financial* phase of the law of diminishing returns and it is quite possible that the price secured from the added bushels of corn more than repaid the farmer for costs of the added labor outlay.

If this farm illustration be applied more broadly, we can say that the manager must watch carefully the technological aspects involved in combining his productive factors and must watch their action *in financial terms* in order to arrive at sound

conclusions concerning how to operate his business unit profitably.

There are principles of management which should be used. — It is clear enough that it requires thought to manage a modern business unit effectively, no matter whether it is a farm, a department store, a machine shop, a shoe factory, or something else. As time has gone on certain general principles of management, or certain general statements concerning how to go about the task of management have been developed. It will be worth while for us to notice three of these.¹

1. Systematic use should be made of experience.
2. Personal effectiveness should be promoted.
3. Effort should be economically regulated.

Systematic use should be made of experience. — That we should profit by the teachings of experience is obvious. Both the mistakes and the successes of the past ought to be drawn upon to set standards for present and future action, and the keen manager draws upon them. For example, one sales manager has kept for fifteen years detailed records of how much each of his salesmen has been able to sell of each line of his goods in each territory into which the manager has divided the country. These records take into account varying conditions of seasons, advertising, etc. The sales manager has drawn from these records and from some experiments he has carried on what he calls a "set of standards." From these standards he estimates in advance the probable sales for the coming year and gives each of his salesmen a "stint" or "quota" or "bogey." He has also developed other "standards" of *how* to make sales and these have been passed on to his men for use.

The work of this sales manager serves well to indicate what must be done to make systematic use of experience. First of all there must be knowledge of what has happened and frequently this means that records must be kept. Second, this

¹ This outline of the work of management is adapted from A. H. Church and L. P. Alford, "The Principles of Management," in *American Machinist*, XXXVI, pp. 857-861.

knowledge must not be kept as a mass of scattered details but must be reduced to standards of performance. Third, if this knowledge does not cover the whole field, the gaps must be filled by experimentation. Fourth, present and future practice must be measured against these standards. Fifth, continuous effort must be expended to improve the standards, and sixth, these standards must be passed on to become the ordinary practice of the concern.

Of course, the wise manager does not confine himself to the experience of his own firm. He ranges far and wide in search of facts. He may even employ outside research agencies. Furthermore the word "experience" as here used is very broad. It includes securing from books or from other sources any facts bearing upon the successful conduct of his business, for his "standards" must always be applied in the light of conditions as they actually exist.

Personal effectiveness should be promoted.—The modern risk-taker does not merely manage *things*. He manages *persons* who are working with *things*. It is accordingly wise for the manager to promote in any reasonable way the efficiency of the persons concerned.

Now this is a very large story. It certainly includes having good physical conditions both among the workers and among the things with which they work. We saw how important it was to have good physical tools, and those well adjusted, in the account of the engineer who studied the laying of bricks. That same account showed that it was important to get the "right" person, physically, to do the work. It is, however, merely a beginning to get the physically "right" person who *starts* in good physical health. "Shop conditions must be such that good health can be *maintained*. This point is beginning to be understood, and modern shops avoid the dirt, darkness, and obscurity, and extremes of cold and heat that a generation ago were accepted as good business. We have progressed so far as to be aware that, on the contrary, they are very bad business. Closely allied is the question of affording

facilities for personal cleanliness, dining halls for the midday meal, and other auxiliaries to physical needs of shop existence. The most widespread application to-day is in the safeguarding of machines and operations.”¹

Personal effectiveness is not concerned merely with physical matters. Account must also be taken of what the psychologist is likely to call “the will to do.” Probably no one to-day knows exactly what this means, but all of us know some of the things it means. It means that the best results are obtained when the worker approaches his work in a frame of mind which calls forth his best efforts. Sometimes this frame of mind is the result of good leadership. All of us do better when we have confidence in our leaders. Sometimes it is the result of the worker’s pride and interest in the work which is being done. Sometimes it is the result of a system of wage payment which gives rewards closely related to the amount and quality of performance. Sometimes it is a combination of these and other factors. Always it means that a good “incentive” has been found to do good work, and managers are eager to find these good incentives. The best managers realize that these incentives should not be used in such a way as to lead to overwork. If they are so used, overfatigue and poor health may result. This means poor physical conditions and these are to be avoided.

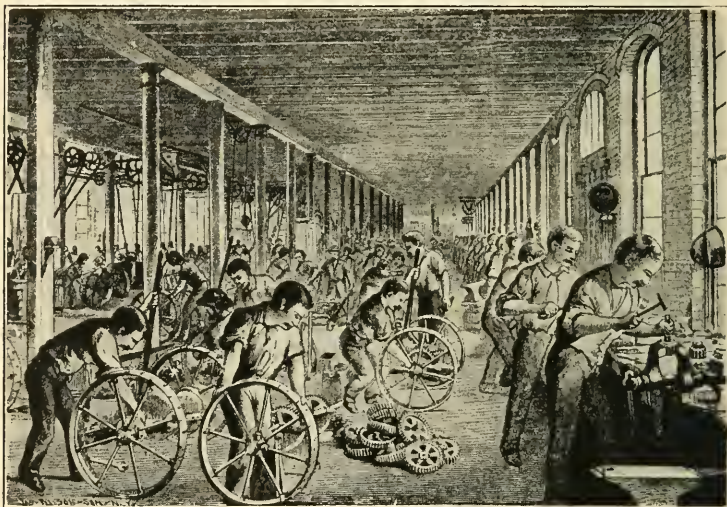
Effort should be economically regulated. — Good management means much more than having experience accumulated; having good equipment; and having able workers filled with the “will to do.” All these factors might be present in a business but unless they were combined effectively (the business man would be likely to say “controlled”), production would be below what it ought to be. Effort must be economically regulated.

This means first of all that effort must be divided, — so that specialization may occur. We have already studied the value of specialization in our production processes (see Studies

¹ *Op. cit.*

IX–XII) and discussion of its contribution may accordingly be omitted here.

Economic regulation involves coördination of specialists. — But when division of effort, or specialization, occurs steps must also be taken to knit these various processes into one harmonious whole. In other words, specialized effort must be coördinated



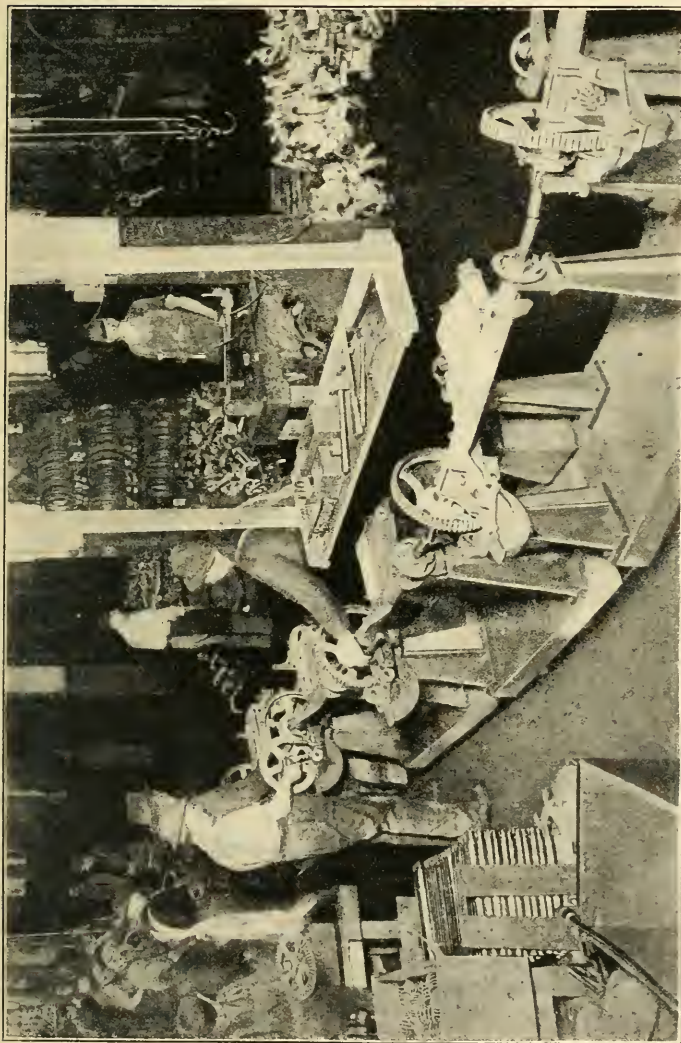
Courtesy International Harvester Co. of America

SETTING UP MOWERS IN McCORMICK REAPER WORKS IN 1885

Little was known about progressive machine assembly in 1885. Compare this with the way they do it to-day as shown on page 407.

or controlled, and just here is one of the hard tasks of the manager (see p. 198).

In the days of the craft guilds, the master craftsman knew and conducted personally every phase of business activity within his small shop. It was not necessary to turn over to other people part of the power of directing. As businesses have grown larger, however, it has become increasingly necessary for the manager to turn some matters over to subordinates for execution, reserving, of course, general supervision and control. Naturally, it is wise to do this in such a way as to

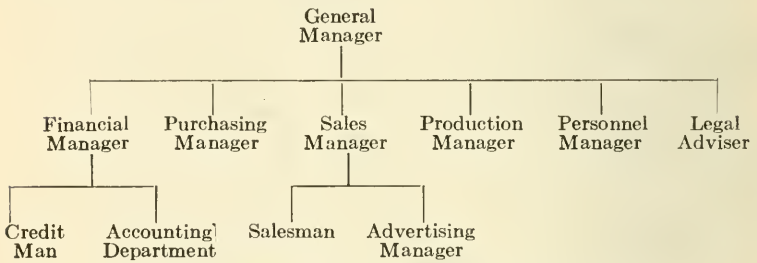


Courtesy International Harvester Co. of America

ILLUSTRATION OF THE COÖRDINATION AND CONTROL OF SPECIALIZED EFFORT

The mower frames are placed on small trucks which move in a never-ending stream before the operators, each of whom does a certain part of the work. By the time the truck reaches the other end of the room, the frame and gears are assembled and ready for testing. Compare with picture on page 406.

take advantage of the principle of specialization, one man, for example, taking care of purchases, another of finance, and still others caring for other functions. The accompanying chart shows how the various functions might be parceled out in a manufacturing business. The general manager supervises the work of his specialized subordinates after having determined, probably in conference with them, the policies which they are to carry out. It need hardly be said that they all make "systematic use of experience."

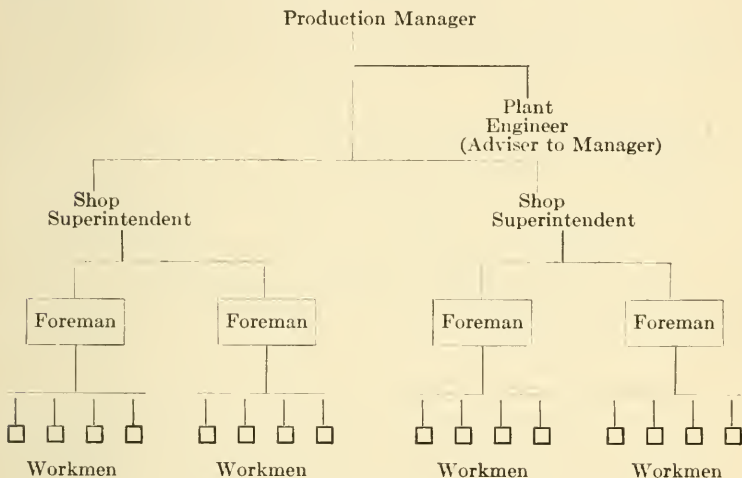


POSSIBLE DEPARTMENTS OF A MANUFACTURING BUSINESS

This diagram reflects not only the fact that specialization has taken place, that effort has been divided — but also the further fact that it has been coördinated, for the lines in the chart represent "lines of authority." This can be more clearly seen if we elaborate the chart by sketching the organization under one of the main managers, let us say the one under the production manager. (The production manager in a manufacturing establishment may be thought of as the man who is in general charge of the manufacturing processes.) A very simple production organization might be charted as shown on the facing page.

Such a chart is intended to indicate that definite relationships have been set up among the people concerned. When the general manager is confronted with a production problem the solution is worked out through the production manager, who, after consulting the plant engineer, assigns certain tasks to his various shop superintendents. The superintendents charge

the several foremen with certain duties. Each foreman is responsible to his superintendent but takes no orders from the other foremen. The foremen in turn each direct the work of a number of workmen. The workmen are all on the same level so far as authority is concerned.



POSSIBLE DEPARTMENTS UNDER A PRODUCTION MANAGER

The foregoing illustrates only one of several different methods of drawing up an organization so as to make sure that efforts will be coördinated. These various methods may be regarded as devices which have been developed to aid the manager in his tasks.

Accounting a great aid in economic regulation. — Another device, and one which is used both in regulating effort and in accumulating experience, is the keeping of records, — mainly accounting records. Every business man is continually trying so to plan his work that he can organize better in the future than he has done in the past. Every business man tries to make use of his mistakes and his good judgment in the past to work out an organization policy for the future. To remember all the details of all of the activities that transpire every day

in his business would be impossible. He relies, therefore, upon many written records. For example, he keeps careful records of his raw material so that he will not upon the one hand waste productive resources by having an unnecessary amount of raw material on hand, and will not, upon the other hand, have idle machines because he suddenly "gets out of raw material." A record sheet which serves such a purpose is illustrated below.

Name and specification								
Usage past		Maximum to		Minimum to				
6 months		be on hand		be on hand				
DATE	PURCHASED		RECEIVED		ISSUED		BALANCE ACTU- ALLY ON HAND	REMARKS
	Quantity	Order No.	Quantity	Order No.	Quantity	Order No.		

RAW MATERIALS STOCK RECORD

It will be seen by a glance at this record card that there are spaces in which the quantity of material purchased can be recorded, other spaces in which the amount received and the amount issued for use in the factory can be noted, and similar spaces in which the balance of material on hand can be indicated so that it can be observed at any time and plans made accordingly.

Records have also been devised which enable the business manager to know a great deal about the kind and quantity of work which is being done by his men. In many shops and manufacturing plants the workmen or foremen are required to fill out "time tickets" somewhat like the one below which

greatest aid to a business man who is trying to understand as thoroughly as possible what is happening in his factory or store, so that he may guide his business policy intelligently. They help him form a judgment whether he is combining land, labor, and capital in the "right" proportions.

If the records of a shoe manufacturer, measured against "standards" set by experience or by investigation, show him that he has too many laborers for the amount of machinery in his factory, he may discharge some of them and thus release social energy for work in some other line. If his records show him that he has too small an amount of machinery, he may purchase more and thus draw social energy to the making of shoes. The same principle holds true in every other factory, store, farm, and railroad where accounts are kept. It is largely by means of accounts that business men determine the amount of social energy of any kind that they want. Accounting is thus a device of vital importance to society in carrying out the function of apportioning social resources.

Scientific management one approach to the foregoing principles. — In recent years much attention has been given to methods of improving management. "Efficiency" and "scientific management" are much talked of and various "systems" of management have been proposed. A new profession, that of the industrial engineer, has come into being with the aim of giving expert advice on management problems. We do not need to go into the details of this movement. By the development and use of many devices it emphasizes the systematic use of experience, the development of personal effectiveness, and the economic regulation of effort.

The position of the manager summarized. — Partly by way of a review of what has been said in this chapter and partly to connect what has here been said with the content of other chapters, let us set down a series of statements concerning the work of the risk-taker in conducting the affairs of his business unit.

1. Society permits the risk-taker to conduct business units

because it is the way which has been developed for securing "right" apportionment of our productive resources within the business unit. Most people appear to believe that a competent manager will do this work well and will therefore succeed (make gains) in this competitive society of ours. The incompetent manager, on the other hand, will be eliminated through business failure. As time goes on, therefore,—the theory runs — competent men will be in charge of the work and society will gain in that it will secure a large output of want-gratifying goods. We have already discussed some of the merits and some of the shortcomings of this theory (see p. 329) and that discussion need not be repeated here.

2. In conducting a business unit the manager is confronted by many problems. One of the most serious is the technological problem — that of an appropriate *physical* combination of the factors of production. We have seen in other connections that ours is a technological society (see p. 221). In modern manufacturing business the manager is almost certain to have occasion to make use of the principles of chemistry, physics, geology, psychology, and physiology. If he cannot do so himself, he must hire experts who can. In some cases advanced graduate work in our great universities does not give training sufficient to cope with the technological problems which arise.

3. Another serious problem is the price problem — that of an appropriate *value or price* combination of the factors of production. The manager does not simply take any land, labor, and capital that happens to be convenient and combine them. In every case *price* enters. He must ask himself such questions as these: "Will this grade of labor for which I must pay \$8 a day be better for me than another grade for which I must pay \$5?" "Shall I use more labor at \$8 a day to do a certain piece of work or buy labor-saving machines at \$1000 a machine?" "Shall I use a \$1000 machine or a \$5000 machine?" After he has solved such problems he faces the fact that his product is sold "at a price." Unless he has monopoly power, he will be able to control neither the prices of

his producers' goods nor those of his product. "The market" sets the prices.

4. Furthermore, the manager deals with his problems under the rulings of social control. He cannot always do the thing which would pay. Suppose he and his cost accountant agree that it would be profitable to use child labor. He will not use it, if the law of the state forbids. Or suppose that his cost accountant demonstrates that it would be profitable to omit certain safety devices. It is clear that the law of the state may be more persuasive than the calculation of the cost accountant. Or suppose his sales manager demonstrates that a certain form of advertising would be profitable. If this form of advertising happens to run counter to the code of ethics of the Associated Advertising Clubs of America, our business manager may not think it wise to follow the gleam of profits. Then, too, as we have seen (see p. 323) the institutional life round about him, — such as the banking system, or the marketing methods, — largely fixes the ways in which he may carry on his work.

5. We must not forget that the manager is in a rapidly changing society and that these changes affect all problems he must meet. There are changes in technique. Science is always finding new ways of doing things. The method of production or of marketing may be completely changed in a few years; notice, for example, the rapidly increasing use of electric power and of the mail order house. There are changes in prices, a matter discussed in Study XIX. There are changes in laws, in public opinion, and in the social environment in general. The manager has little part in causing these changes. Nevertheless, the slightest misjudgment of them may result in business failure. Truly the modern manager needs to know "how this world is put together and what makes it act the way it does."

6. Much attention is being given these days to the development of principles and devices which will make the manager better able to cope with his many and varied problems. It is the need of such principles and devices that has given rise to our

emphasis upon such matters as cost accounting, business statistics, scientific management, industrial engineering, and education for business management.

7. We must not deceive ourselves concerning the importance of good management. It is important not only for the business unit concerned, but also for society. It is as important in an enterprise conducted by the government as it is in an enterprise conducted by private individuals. It would be important in any organization of society we can imagine, for always it would be important to have productive resources wisely utilized.

PROBLEMS

1. Explain why society is interested in having "a correct apportionment of productive resources among the various enterprises of the community." Why is society interested in having a correct apportionment of productive resources within the walls of John Smith's business? Why is John Smith interested?

2. Can you give examples of men or women who are better adapted to one kind of work than to another? Suppose that a man's feet are crippled, does this handicap him for farm labor? Does it handicap him for writing books? Can you tell whether he will better write books dealing with mathematics or geography?

3. Show how the industrial engineer who was studying how to lay bricks had to watch lest the increased cost of tools offset the gains coming from the ability of the worker to lay more bricks.

4. Study the account of the work of this industrial engineer with the purpose of finding out what is meant by time and motion study.

5. How many square feet of wall should a man paint in a day? Explain how "time and motion study" might help to answer this problem.

6. Suppose that you are employing ten men to build a brick building. Each man is able to lay a certain number of bricks an hour. You have determined in advance exactly how fast hod-carriers will need to work to supply the masons with bricks. Suppose one of these hod-carriers does not perform his standardized task, whose time is lost?

7. In a certain factory twenty men work on one part of an automobile. As soon as this part is finished it is attached to a second part upon which fifteen men are employed. If the second part is not ready as soon as the first, the twenty men have nothing to do until the second part arrives. Explain how "time and motion study" and standardized tasks might save money in factories where such "assembly" of parts must be made.

8. Is the capital which you use well adjusted to your use? Is your desk too high or too low? Is the light poor, or does it come from an inconvenient direction?

9. Make a visit to the kitchen of your home and study its arrangements. Can you suggest improvement in its organization?

10. See if you can discover an activity in your home, in your father's place of work, or in your school where a great deal of effort is spent needlessly.

11. Explain what advantages were gained by the proper adjustment of capital and labor in bricklaying.

12. A manufacturer of barrels produces one hundred a day with a certain number of men and a certain number of machines. If he doubles the number of men, are you sure he can produce two hundred? If he keeps the number of men constant and doubles the number of tools, will the returns or output increase in proportion to the increase in implements? Will it remain unchanged?

13. What is meant by the "technological law of diminishing return"? Show how it may be profitable to conduct business matters even though the technological law of diminishing return is operating.

14. The first general principle of business management cited in the lesson was "systematic use should be made of experience." Does this apply to other than business matters? Give examples.

15. A business manager has a chance to buy his supply of coal at a bargain for the ensuing year. Can you show how he can determine in advance how much he will need?

16. Why does a business manager care to keep a record of the cost of production of his goods?

17. Make a list of as many records as you can that it would seem desirable for a manufacturer to keep. Show one use which he might make of each of these.

18. "Accounting is an instrument of control in the hands of the business executive. Through it he helps work out the proportioning of the various productive factors in his business." What does this mean?

19. Write out your own statement of the value of recording experience not as a mass of details but as a set of standards.

20. Do you understand that "experience," as that word is used in this lesson, may be secured from laboratory experimentation? From reading in books about what other business managers do?

21. The second general principle of business management cited in the lesson was "personal effectiveness should be promoted." Does this apply to other than business matters? Give examples.

22. Explain in your own words the importance of (a) good physical conditions, (b) good training, and (c) good "will to do" in the promotion of personal effectiveness.

23. Some persons think that the promotion of personal effectiveness is the most important matter in all business management. What can you say in support of that position?

24. The third general principle of business management cited in the lesson was "effort should be economically regulated." Mention the various methods and devices which may wisely be used in this process.

25. Review the study of specialization in business units, and give disadvantages that arise from division of labor. From your review of the same lesson, determine whether advantages arise from specialization of capital and land as well as specialization of labor.

26. The following are some of the advantages of the division of labor:

- (a) Adjustment of workers to tasks.
- (b) Shortening of time involved in learning a task.
- (c) Less waste of material in learning tasks.
- (d) Increased dexterity or skill.
- (e) Economy of tools.

Show why each of these advantages is present in division of labor.

27. The whole scheme of scientific standardization of work breaks down and becomes useless if the tasks assigned are too difficult. Explain why this is true.

28. Scientific standardization of tasks is most useful to a business manager only when the tasks are determined, not on the basis of how much a man can do for one day, but how much he can do comfortably every day without undue fatigue. Explain why this statement is true.

29. What is an organization chart of a business? Is it a "control system" or merely a picture of a control system? Could an organization chart be drawn of a school system? Just what is the usefulness of an organization chart?

30. Just why does the "technical expert" play a greater part in modern industry than he did in medieval industry?

31. How should you define "scientific management"? What is its significance with respect to the guidance of economic activity?

32. Upon which phase of the matter, (a) the apportionment of social energy among various industries and industrial plants, or (b) the conduct of operations within an industrial unit, does the technical expert have more influence? the financier?

33. Make an outline of the main points in the lesson.

REFERENCES FOR FURTHER STUDY

- Marshall, *Readings in Industrial Society*: Selections 332-335.
Jones, *The Administration of Industrial Enterprises*.

STUDY XXIII

THE WISE UTILIZATION OF NATURAL RESOURCES

PURPOSES OF THIS STUDY:

1. To study the use of some of our important natural resources.
2. To survey some of the agencies working for a better utilization of natural resources.

Society's productive resources should be wisely utilized. — Since the very beginning of our study of how our wants are gratified, we have seen the importance of natural resources, labor power, capital goods, and acquired knowledge and organization. These constitute the fund of productive energy of our society. They are the basic materials from which we get want-satisfying goods. They are society's productive assets. The more wisely they are utilized, the better will our wants be gratified; if they are not wisely utilized, so much the worse for want-gratification. Throughout our work we have had our attention repeatedly called to efforts to make better use of all our resources.

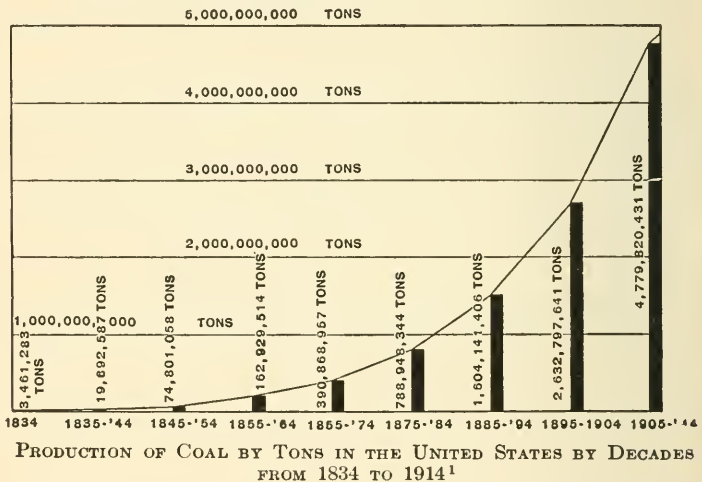
It will be worth while to spend some study upon our natural resources. Concerning them three matters are perhaps of most interest. (1) What is the extent or available supply of our more important natural resources; (2) what are some of the methods employed in using these resources; (3) what efforts are being made to improve these methods?

The natural resources which are of greatest value to us come readily to the minds of every one. Every day we see some of the uses made of coal, petroleum, wood, gold, silver, copper, and iron. Almost as noticeable, in some communities at least, is the use of water power, while each of us every day uses some of the products of the soil. We call to mind less frequently the

uses of manganese, mica, platinum, lead, zinc, tin, chromite, asphalt, graphite, stone, sulphur, gypsum, and clay.

Power important for modern industry. — Production like ours, which in such large measure uses machines, needs power in immense amount. Coal, water power, and petroleum are the great sources from which most of our power comes. Let us give our attention to these energy resources.

Our coal resources. — The increasing demands made upon our coal supply are well shown in the following chart.



For some years we have been using about half a billion tons of coal a year. In 1918 there were produced in the United States 684,710,000 tons (short) valued at \$1,801,500,000.²

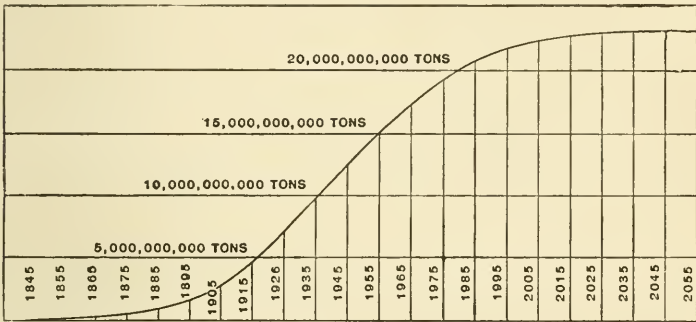
Fortunately, no doubt, for the continuance of machine industry, we are taking this large annual use of coal from a large supply. It is estimated³ that on January 1, 1920, our reserves were about 3,533,688,000,000 tons within 3000 feet of the sur-

¹ Based on Marius R. Campbell, *The Coal Fields of the United States*, U. S. Geological Survey, Professional Paper 100-A, p. 25.

² United States Geological Survey, *Preliminary Report of the Mineral Resources of the United States in 1918*, p. 36.

³ Cf. Campbell, *op. cit.*

face, which if it “ could be placed in one great cubical pile as solid as it now lies in the ground would be 18 miles long, 18 miles wide, and 18 miles high. Similarly, if all the coal that has been mined in the United States plus about fifty per cent for waste, . . . were piled in the same way, the pile would be 1540 feet long, 1540 feet wide, and 1540 feet high ; or in other words only about 0.4% of the original amount has been mined or wasted in mining.”¹ At our present rate of use such a supply of coal might be calculated to last more than 4000 years. It



ESTIMATED PRODUCTION (TONS) OF COAL IN THE UNITED STATES TO THE YEAR 2055, BY DECADES ENDING IN THE YEARS CITED²

is worth while, however, to notice that our rate of consumption, in the past at least, has not stood still. We use more and more each year. Not only is this true but we are rapidly using the “ more accessible parts ” of our coal supply and also the “ better parts ” — the anthracite and high grade bituminous coal. More than half of what remains is sub-bituminous and lignite. Viewed in this way our supply does not appear “ inexhaustible.” It is of course impossible to estimate with certainty the speed with which we will consume coal in the future, though one thorough student of the subject states that if we should continue at our present rate of increase “ the supply would probably not last

¹ M. R. Campbell, *The Coal Fields of the United States*, U. S. Geological Survey, Professional Paper 100-A, p. 25.

² Based on M. R. Campbell, *The Coal Fields of the United States*.

one hundred years. The true life of our coal fields probably lies between these two statements, and the probability is that it will be nearer 100 years than 4000 years.”¹ The chart on the previous page shows a careful estimate of our use of coal until 2055.

Coal mining methods.—The methods used in mining coal are well described in one of the federal government’s publications.

“In the mine the coal is either blasted from a solid face—shot from the solid—as in hard-rock mining, or is shot loose or otherwise broken down after a preliminary cut into the coal has been made. This cut may be made by hand or by machine. Underground methods are therefore classified as shot from the solid, mined by hand, and mined by machines. An increasing quantity of coal is being recovered each year by stripping the cover from the bed in open pits by steam shovels. The bed thus exposed is for the most part shattered by powder and shoveled into cars by hand, although in places it is picked up by small steam shovels.

“Opposition to shooting from the solid has developed, because it is injurious to the mining property in that the unusual charges of powder weaken the roof and pillars, which increases the liability to of falls roof and coal, the most prolific cause of fatal accidents to coal miners. Another objection to this method is that the heavy charges of powder required to blow down the coal where it has not been previously undercut or sheared cause the production of a very high proportion of fine coal and render the lump coal so easily breakable that it disintegrates in handling and in transportation. With the growing use of mechanical stokers and of powdered coal the latter objection is losing much of its force, but the danger attending the method has been in no wise diminished, and it is forbidden by law in some of the coal-mining States. . . .

“Mining conditions in the Pennsylvania anthracite region, where the beds are steeply inclined, faulted, and folded, are quite different from those in the greater part of the bituminous regions, where the beds are usually quite regular and approximately horizontal, and the methods pursued in recovering the coal are correspondingly different in the two areas.”²

¹ M. R. Campbell, *The Coal Fields of the United States*, U. S. Geological Survey, Professional Paper 100-A, p. 25.

² C. E. Leshar, *Coal in 1916*, U. S. Geological Survey, Mineral Resources of the United States, 1916. Part II, p. 917.

It has often been declared that such methods as shooting from the solid are wasteful of coal, as are systems of mining where pillars of coal are left standing to support the mine roof. It is worth while, however, to bear in mind that coal mines are usually operated for a profit and that the owner probably neither leaves coal behind nor spoils coal which it would be profitable to save. If pillars of wood were used instead of coal pillars, or if men were employed to do the work done by explosives, it might well be more costly than the methods commonly used.

Coal is lost, too, after mining. Our consumption of coal in 1917 was 6.4 tons per capita on the basis of 100,000,000 people, and the utilization of this large amount was in charge of a great many different persons. It is not strange that a considerable amount is lost. Most of us who use a small amount, and even many furnace and engine stokers, do not know the best methods of laying coal to make possible the best oxidation. The direct use of coal by thousands of small users also makes impossible the conservation of the many by-products which are obtainable from this mineral.

Improvements. — Wherever known losses are occurring one does not usually look far to find improvements being developed. In the careful research and instruction of our schools of mining engineering and in the inventions of better mining machinery one sees a lessening of the losses in coal and other minerals. So in the burning of coal we find mechanical stokers devised which insure thorough combustion. Smoke consumers also have been invented which in some cases make it pay to utilize the heated gas that ordinarily escapes up the chimney. Such smoke consumers bring an additional saving to the public at large by lessening the amount of soot and gas that might damage property and health.

The work of the federal government. — Not only do technical schools, individual coal consumers, inventors, and many mine owners work to reduce the losses of coal, but a very important part is played in this work by the United States Government. Especially important is the work of the Bureau of Mines. The

work of this bureau in aiding in the wise utilization of coal (and a large number of other resources as well) is suggested in the report of the Director for 1919. Some of the results of a year's work are listed as follows: ¹

"1. In coöperation with the War and the Navy Departments continued work on plants for recovering helium, a rare gas needed for balloons and airships, from natural gas and demonstrated the merits of the processes used.

"2. Investigated mining and milling problems at mineral deposits throughout the country in order to ascertain the available supply of war minerals, and how these minerals could be produced more efficiently.

"3. Issued reports showing the markets for various ores, minerals, and metals, and giving data on the status of various mineral industries.

"4. Completed a comprehensive réview of the explosion tests of coal dust at the experimental mine near Bruceton, Pa.

"5. Determined the value of the geophone, a device for detecting sounds transmitted through coal and rock, in recovery work, with special reference to its use in locating mine fires and in communicating with miners entombed by a disaster.

"6. Continued the study of the subsidence of the surface over coal mines in Illinois in order to ascertain what system of mining will do the least damage at the surface while permitting the largest recovery of coal.

"7. Through field demonstrations showed operators and well drillers how large wastes of oil underground may be prevented by cementing oil wells so as to prevent water from entering the oil sands.

"8. Determined the advantage of the circulator method of drilling oil wells.

"9. Determined the effects of various factors on the production of gasoline from heavy oils by the vapor-phase cracking process.

"10. Demonstrated the value of absorption for recovering gasoline vapors in the residual gas from compression plants for obtaining gasoline from natural gas.

"11. Gave further attention to the recovery of oil from the oil shales of Colorado and Utah.

¹ In this list of activities, many are given which have nothing to do with coal mining. The student need not be disturbed if he does not understand all of the statements made. He will be helped to appreciate the great variety of tasks performed by the Bureau of Mines.

"12. Continued investigations of the fusing temperature of the ash of different coals in order to show the liability of the coals to clinker.

"13. Ascertained the suitability of American graphites for various purposes.

"14. Began a comprehensive investigation of the white clays of the United States and the value of these clays in the ceramic industry."

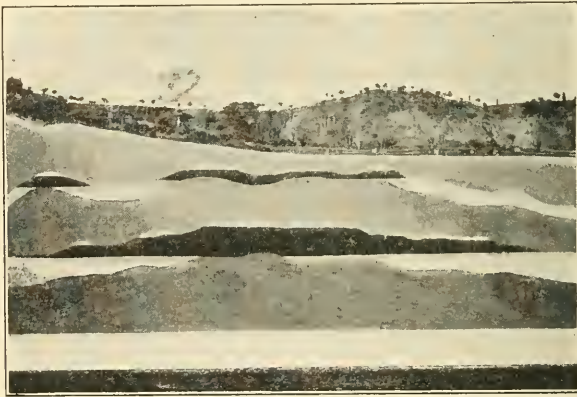
Further effort needed. — While science and technology may always be expected to accomplish much, there may be need for more basic changes if we would look for a satisfactory coal supply in the future as well as in the present. Some persons who have investigated the matter with great care believe that we shall need to modify our present competitive methods in coal mining by much more extensive social regulation than now exists, if we are to make the best use of our coal fields.

"Scattered and unorganized, most of the individual companies are small and financially weak; no adequate coöperation in engineering practice exists; new developments are slow of growth; coal is mined for the most part by obsolescent long-established practice. . . . Many districts have been burdened with a leasing system that obligated the company to remove a given tonnage each year, irrespective of market demand or price, with the result that the richest spots were drawn from seam after seam with irretrievable loss to present needs. Miners' unions in general have fixed wages on the basis of thick and easily worked seams, and imposed such severe penalties upon inferior conditions that the operator is precluded from introducing new and improved methods. Upon all this the policy of the government as exemplified in its anti-trust laws has forbidden combinations and restrained coöperation, with the result that large-scale standardized operation is practically lacking in the mining of coal. Coal cannot be mined effectively under the present system. The nature of the resource demands integration. . . . Coal is a necessity which does not lend itself to competitive mining. . . . In short, coal as a resource demands coöperative measures of development."¹

Some of our petroleum wastes. — Every one is familiar with petroleum, or with some of its derivatives, as, for example,

¹ Chester G. Gilbert and Joseph E. Pogue, *The Energy Resources of the United States: A Field for Reconstruction*. United States National Museum, Bulletin 102, Vol. I, pp. 23-26.

gasoline. As a crude product petroleum comes from the earth in an oily liquid varying considerably according to the locality from which it comes. It is obtained in commercial quantities by drilling wells into the crust of the earth. Several different methods of drilling are known and the oil well is usually marked by a tall wooden framework called a derrick which forms the support for the drilling implements. When oil "is struck," which may be at a depth varying from a few hundred



Courtesy Smithsonian Institution, U. S. National Museum

VIEW OF THE OCCURRENCE OF OIL AND GAS IN POOLS

The heavy black strips represent oil. The white pockets above the oil represent gas. The white below the oil represents water. The gray represents rock.

feet or less to thousands of feet, the petroleum may spurt forth in a great stream under the influence of natural gas held in folds under pressure. Other wells furnish oil only under the inducement of pumping.

The general practice of quitting a well when no more oil comes from it is said by engineers to leave behind more than half of the oil "still clinging to the pores and capillary spaces in the rock."¹ To obtain this oil profitably is a great engineering

¹ Chester G. Gilbert and Joseph E. Pogue, *The Energy Resources of the United States: A Field for Reconstruction*. United States National Museum, Bulletin 102, Vol. I, p. 38.

problem. When a gusher well is struck, that is, one from which the oil comes without pumping, much oil has been lost because facilities for catching and storing the product have not always been available. "Lakes of oil" gather from which much escapes through seepage and evaporation. Great fires of such oil lakes are not uncommon. One of the most perplexing problems in connection with the proper utilization of our petroleum supply comes from the way in which it is found in the earth and from the system of small unit drilling. The objection to this system becomes clear when we understand that the petroleum which we have been using has been found in "pools."¹

If an owner or lessee of oil land is successful in finding oil, all other persons who own the right to drill in the same neighborhood are anxious to sink wells as near the successful one as possible and to sink as many as they can before their competitors draw off the entire pool through their wells. This struggle to get as much as possible from the pool frequently results in haste and the production of more oil than can be taken care of at the moment. It is a case where the operator must work hastily and with some loss of oil or perhaps secure nothing. The struggle among different operators is well shown in the diagram above.

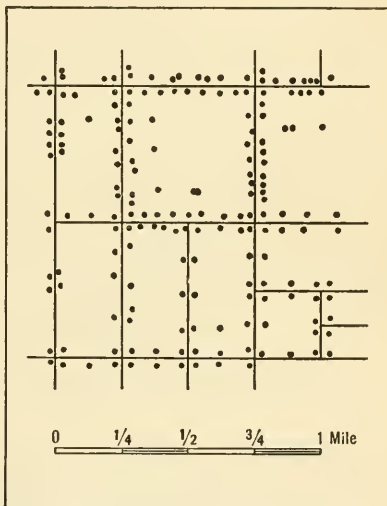


DIAGRAM SHOWING THE RELATION OF OIL WELLS TO PROPERTY LINES

Note the small holdings, excessive number of wells, and the tendency of wells to occur in pairs on opposite sides of property lines. Data from Bulletin 658, U. S. Geological Survey, 1917, Plate 4.

¹ United States National Museum, Bulletin 102, Vol. I, p. 31.

Many persons who are most interested in better methods of production in petroleum advise that our present method of leasing under small unit operation must give way to some other form of production if we are to secure our petroleum supply with less loss. "Neither technology nor law can meet the issue unaided — and no one wants the autocratic method, good or bad. . . . Must we admit that to gain a legitimate service from petroleum we must sacrifice nine tenths of the resource? Such a necessity indeed does exist so long as the petroleum resource is left subject to the untrammelled operation of the law of supply and demand — under conditions of unrestricted competition in production. The first step toward betterment would logically be to disfavor small holdings. In the case of private oil lands a constructive policy will favor and facilitate integration at least up to the point where each geological unit (*i.e.* a pool) is occupied by a single producing activity." ¹

Our store of petroleum. — Our interest in petroleum may be stimulated if we realize the immense use which we make of this resource. The following chart will give us a vivid picture of the situation.

Our present knowledge indicates that more than one third of our supply is already used, and while we may hope for great discoveries of new fields in the future, the fact that between 1908 and 1916, during which time the most active exploration campaign in the history of oil development was carried on, the reserve of natural petroleum was enlarged by only 1200 million barrels, a scant three years' supply at the present rate of consumption, does not make this hope as comforting as we might wish. Though our reserve of natural petroleum is low, we have a vast reserve of oils in the oil-producing shales of certain states. It is estimated that these oil shales in Wyoming, Colorado, and Utah will yield seventy-five billion barrels of oil. There are other less important fields in other parts of the United States. One of the most important of these is in Southern

¹ Adapted from United States National Museum, Bulletin 102, Vol. I, pp. 90-92.

Indiana. The oils secured from these shales can be used for the purposes for which we now use petroleum.

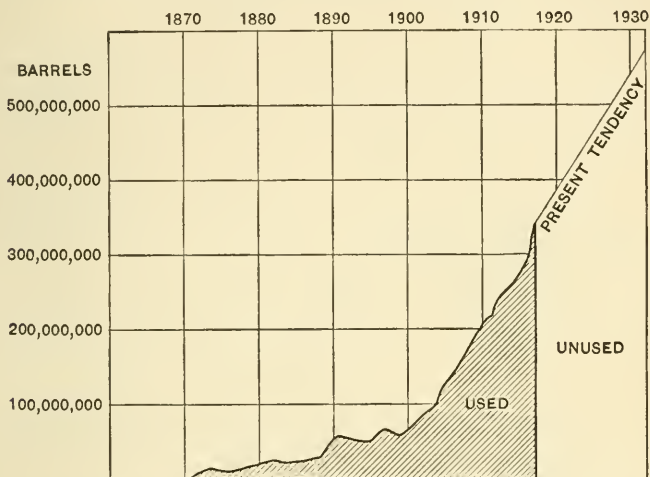


CHART SHOWING THE PRESENT TENDENCY OF THE UNITED STATES IN RESPECT TO ITS UNMINED RESERVE OF NATURAL PETROLEUM¹

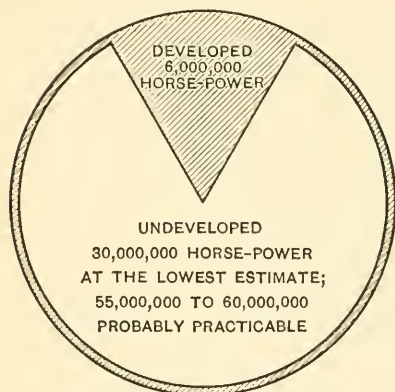
Water power. — Water power is the third great source of power in the United States. It is said that one may state our annual consumption of energy in terms of 700,000,000 tons of coal, plus 400,000,000 barrels of petroleum plus 6,000,000 horse power of hydro-electricity.

When coal and petroleum are considered it is the inefficiency in the use of resource that attracts the attention of conservationists. When water power is the matter under consideration, it is the lack of use which in large part gives rise to concern. While we are considering water resources it is well to have in mind the vital value of water as a drinking supply, its use for transportation and its extensive possibilities for irrigation. We will consider particularly, however, the matter of power.

The United States Geological Survey estimates that the

¹ From United States National Museum, Bulletin 102, Vol. I, p. 54. Data from U. S. Geological Survey.

water courses of the United States have at their minimum flow 36,000,000 horse power and that this could be increased five times by developing all storage possibilities.¹ While one of these estimates is at the minimum and the other perhaps at the maximum, it has also been estimated that there are fifty-five or sixty million horse power which we can think of as within the range of practicable possibilities. The relation of developed to undeveloped water power can be shown diagrammatically.²



STATUS OF WATER POWER IN THE UNITED STATES IN 1909

Compare Walter McCulloch, C. E., *Water Conservation*, p. 38.

One may wonder at first that so much of our potential water power is unused. Water power is called a free gift of nature, but we must not forget that it is not usually free without great expenditure of our other resources. In modern society where we use the powerful motive of self-interest to get goods produced in the least expensive way, it is not strange that the use of coal and oil has retarded the development of water power.

In any event, it is comforting to realize that we have such a vast potential power resource in reserve even if it may cost us more to use it than it costs at present to use coal and petroleum. This source also, if properly administered, is literally inexhaustible. Rivers "flow on forever."

The question of water conservation like that of conservation of other energy resources raises considerations of different types. One is a question of general public policy. Should we use some methods other than self-interest and competition guided by market demand, to bring about a development of water power?

¹ Walter McCulloch, C. E., *Water Conservation*, p. 37.

² *Ibid.*, p. 38.

Some persons believe that the federal government should take steps to stimulate the building of hydro-electric plants, and especially of transportation lines for electric power.¹ Some added weight is given to this argument when it is pointed out that water conservation is, in the case of many rivers, quadruple conservation. Not only may power be saved by water conservation, but a drinking water supply is insured, navigation possibly improved, and irrigation made possible.² It may well be possible that wise water utilization (like the construction of lighthouses, the building of streets and sewers, the quarantining of contagious diseases, and the construction of recreation parks) may offer more for the public good than a private business can conveniently get out of it and therefore needs some support from society at large.³

Waiving aside differences of opinion (which always exist) concerning the wisdom of governmental intervention, probably all can agree that appropriate action would vary with individual cases under consideration and would undoubtedly depend upon the values to be secured in any individual case.

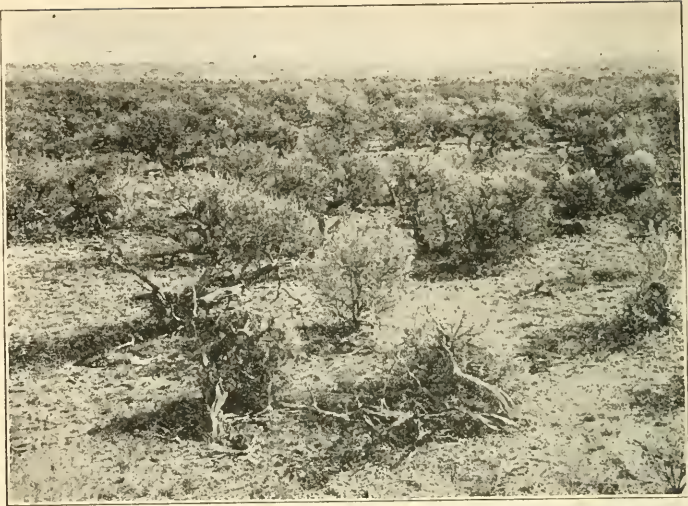
“It is obvious that the flood waters pouring through the valley of some mountain stream may have enormous power possibilities, and upon reaching the lowlands may inundate large areas of fertile land; but if there is no market for the water power, or if the flooded lands are not under cultivation, there is no present, determinable value to the unused power, nor is there any real damage done to the lands which are flooded. On the other hand, the same volume of water issuing from the hill country of New England may cause a damage to cultivated lands and to municipalities to the extent of thousands of dollars, and at the same time the wasted water power would have a value double or treble the amount of damage done. In the latter case, the need for and the value of water storage is apparent and is a positive fact, while in the former no such fact exists at the present time.”⁴

¹ See for example, C. G. Gilbert and J. E. Pogue, Bulletin 102, Vol. I, National Museum, 1919, under discussion *Power*.

² G. F. Swain, *Conservation of Water by Storage*, p. 24.

³ *Ibid.*, p. 29, for a discussion of opposing views on this matter.

⁴ Walter McCulloch, C. E., *Water Conservation*, pp. 13-14.



Courtesy of the U. S. Reclamation Service

THE DESERT BEFORE AND AFTER IRRIGATION

The upper picture shows the desert covered with sagebrush, illustrating the condition of lands before water is applied. The lower picture shows the desert reclaimed by irrigation.

There remains in a study of water conservation the second major consideration — the engineering problem involved. It is easy to see that the questions of public policy, of law, and engineering considerations are interrelated. If engineers can find ways of producing new water power more cheaply than power from oil or coal, and laws are not so stringent as to restrain activity, we may be sure that water power will be used. On the other hand it may be decided to be good public policy to develop water power even when it does not pay in the market. In either event, there are great engineering feats to be accomplished. The engineering problems involved in water conservation for power will be better understood if we realize that “the value of any water power is directly proportional to the volume passing over the fall every second and the uniformity of the flow.”¹ Large volume of flow over a high fall is of little value if the flow is only for a short period such as we might find during a flood, while a large and constant flow over a much lower fall would be of greater value. The more ideal power value is found in streams which approach a constant uniform volume. The steadiness of stream flow has been said to depend upon :

“ 1. The size of the drainage area above the point considered.

“ 2. The shape of this area.

“ 3. Its geological character.

“ 4. Its topographical character.

“ 5. The surface conditions, such as the extent of forested area within the drainage basin, the area of swamp land, the area under cultivation, etc.

“ 6. The extent and location of lakes or artificial reservoirs, and their manner of control.

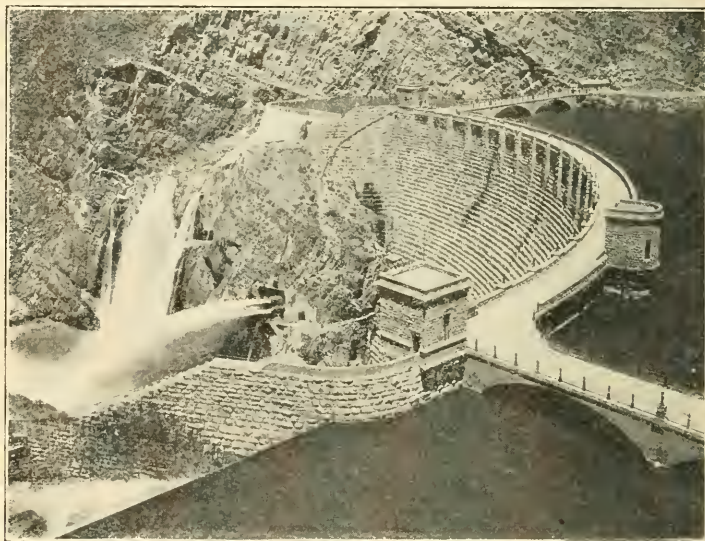
“ 7. The meteorological conditions affecting the drainage area.”²

The variations in the flow of certain rivers is illustrated in a rather extreme way by the Merrimac River, which in one year showed a discharge more than thirteen times as great during

¹ Walter McCulloch, C. E., *Water Conservation*, p. 37.

² George Fillmore Swain, *Conservation of Water by Storage*, p. 156.

certain days in the spring than it did during the dry seasons of the year. The Androscoggin in Maine in the same way showed a discharge in certain days of the spring flood more than ten times as great as the flow at any time in August. The control of the flow of the stream is therefore one of the most important engineering problems in connection with water power. Storage



Courtesy U. S. Reclamation Service

THE ROOSEVELT DAM, NEAR PHOENIX, ARIZONA

Height of dam, 284 feet
 Length, top, 910 feet
 Thickness at base, 168 feet
 Thickness at top, 20 feet

Reservoir holds 1,367,305 acre feet of water. Stores water for 219,000 acres of land in Salt River Valley, Arizona. Below the dam is a power house where 7500 horse power is developed.

is the great method employed. Two chief means are undertaken. One is the construction of surface reservoirs. The construction of storage dams requires of the engineers, studies from a great many points of view. There is, of course, first of all the economic question. Will the benefit be worth the cost? There is next the needed topographical survey to ascertain

whether or not there are suitable sites for reservoirs and favorable locations for dams. It is of course desirable if possible to hold back a large volume of water with as short a dam as possible and to avoid at the same time spreading water over land which is valuable for agriculture or other purposes. The economic and topographical studies must be supplemented by geological examinations. The underlying rock structure will have much to do with determining the safety of any reservoir built and the design which can wisely be used. The rainfall in the area concerned and the record of stream flow will be needed and can be had only after hydrographic and meteorological studies have been made.

The construction of the dam itself requires a knowledge of the technique of hydraulic engineering, which is, of course, a matter into which we cannot go here, but which may be concerned with building the dam or reservoir, the intake or conduit which is to convey the water to a power house, the power house itself and the installation of its turbines, generators and other machinery, and the lines which are to transmit electric power from the power house to the point of utilization.

The second means of controlling water is by forests. This method of control is so closely related to the whole question of forest conservation that it may well be treated under a separate head.

Extent of our forests. — The original forests of the United States were very extensive. All of that section of the country which extends through the upper New England States, New York, most of Pennsylvania, northern Wisconsin, Michigan, and Minnesota was covered with what was known as the "great northern forest." The trees of this forest were for the most part various varieties of pine and especially of the famous white pine. South of this great forest was another covering Ohio, Kentucky, Tennessee, parts of Indiana, Illinois, Iowa, and Missouri and extending south to Oklahoma, Texas, and the northern edge of the states which border on the gulf. This forest contained for the most part hardwood trees, such as oak,

walnut, hickory, and maple. The southern coast states were covered with a growth of coniferous trees, of which the yellow pine was the most numerous. The Rocky Mountains were also partly covered with trees—fir, redwood, and one or two varieties of pine being the most plentiful. The forest growths of the Pacific coast contained the giant firs and redwoods which have made California famous for trees.

The total numbers of acres covered by the original forests was at least 850,000,000 and contained, it is estimated, 5200 billion board feet of salable timber. The tremendous use which we have made of wood has reduced this forest wealth by approximately one half, although the United States still contains some 500,000,000 acres of timber.

The present extent and situation of our forests are concisely expressed as follows:

“Of this total forest area of 500 million acres:

“100 million acres and more are so devastated as to be almost wholly nonproductive.

“Over 250 million acres have been cut over and more or less damaged by fire, but are producing new timber, usually in small amounts.

“150 million acres are in standing timber where growth merely balances decay, with no net increase in wood production from year to year. On a large part of this area the virgin timber is of poor quality and very inaccessible.

“Of the 500 million acres of forest land, 400 million, in round numbers, are in private ownership, and 100 million are publicly owned. Most of the publicly owned timber is in the National Forests, whose total area is about 155 million acres in all. This figure includes lands above timber line, parks temporarily deforested, old burns, etc., so that the area actually under forest at this time is much smaller. Because it is of poor average quality and hard to reach, it will be many years before the National Forest timber can play any considerable part in the general timber market.

“Eighty per cent of our standing merchantable timber is privately owned.

“Ninety-seven per cent of our annual cut comes from privately owned forests.

“By reason of their extent, quality, and location, the forest lands now in private ownership have always furnished and must always furnish the great bulk of the Nation’s timber supply.”¹

Losses in forest use. — Very serious losses have occurred in the utilization of forest wealth. American lumbering has been carried on usually in such a way as to leave the brush and slashings in whatever condition was most convenient. Young trees are injured through the fall of timber and the handling of logs. Much timber it has not paid to take out, especially in the western and southern forests. It is estimated that even within the last ten years western and southern loggers “left from 20 to 30 per cent of their timber in the woods. It has been estimated that only 35 per cent of the actual cubic contents of the tree is utilized, the remaining 65 per cent being lost in the stump, in saw-dust, slabs, trimmings, broken timber, and low-grade logs left in the woods.”² It is to be noticed, of course, that timber has been thus handled because it did not pay the owners to handle it otherwise. Closely related to this loss of timber has been that which has occurred through fires. According to the Forest Service, there were 25,000 forest fires in 1918. One of these was the great Minnesota fire in October of that year, in which 432 lives were lost, 200,000 acres were burned over severely (consuming or killing all timber), 400,000 acres were burned over lightly, 5000 homes were burned, 11 villages were burned entirely and 5 partly, and \$25,000,000 of property was lost.

Such losses as have been mentioned are supplemented by neglect to reforest lands. Lumbermen can hardly be criticized for not replanting their lands. The investment would be one which would not mature for half a century and in some cases longer. In the meantime there are taxes and the danger of fire, both of which are uncertain and too arbitrary to make the investment a conservative one. Tree planting has been called

¹ Gifford Pinchot and others, *Forest Devastation*, a reprint from the *Journal of Forestry*, Dec. 29, 1919, p. 16.

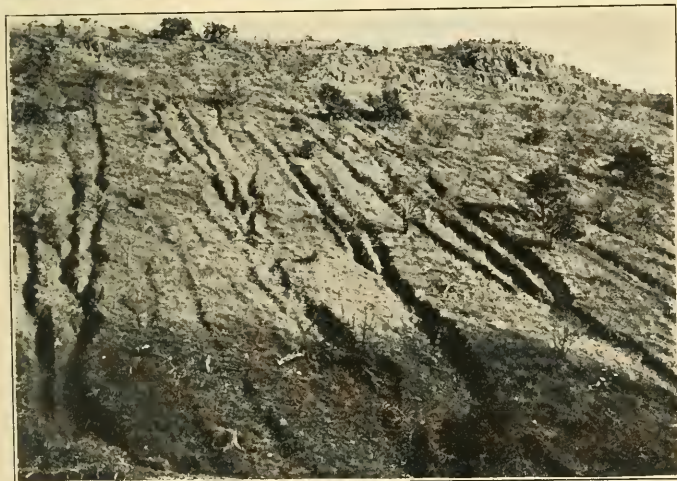
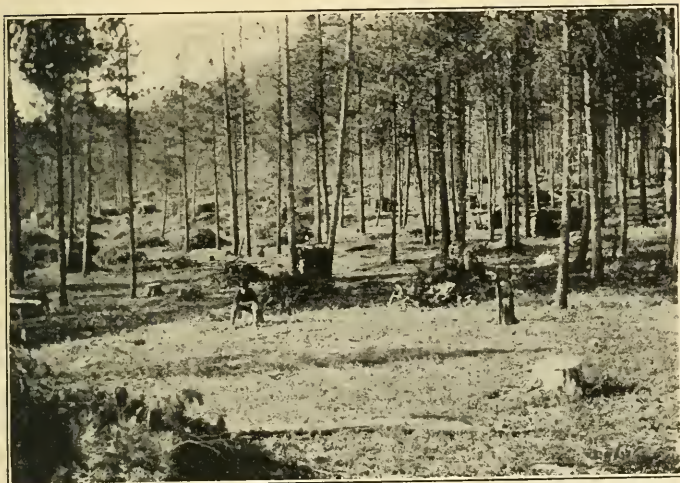
² John Ise, *The United States Forest Policy*, p. 360.

a "risky six per cent investment."¹ The fact that it does not pay the private owner to reforest does not, of course, prove that the public interest would not be served by replanting.

Important among the losses which occur from our forest policy is that which we have mentioned earlier, its effects on water power. The rapid flow of water from the watershed is checked by forests partly because the web of roots and humus in a forest tends to hold water somewhat as a sponge does. As a result the water seeps away slowly instead of running off in a flood as it does on bare slopes. The extension of forests therefore is a method of water control which is being more and more widely urged by those interested in conservation. But the relation of water control by forests to soil is also important. Every one who has seen water flow over the ground knows how even a small current carries along the surface soil. This process, called erosion, is devastating to sloping lands where the flow of water is unretarded.

What agency should control forests? — An exhaustive study of the remedies proposed for improving the use of our forests would, as in the case of our other resources, take us far from our field. We will notice, however, something of the problems involved. Important is the general question of public policy. Is it wise for us to abandon our method of gain apportionment and to apply further measures of public control of the forests? That there are dangers in extending the powers of government might be fairly believed from the experience which we have had in the past with forest legislation by Congress. It is said that "of the important timber land laws passed in the half-century during which our forests were disappearing or passing into the hands of private individuals, only two — the Forest Reserve Act of 1891 and the act of 1897 — stand out clearly as examples of intelligent legislation; and the first of these was secured because Congress did not get a chance to quash it, while the act of 1897 was drawn by a 'theo-

¹ Kellogg and Ziegler, *The Cost of Growing Timber*. Published by American Lumberman, quoted in Ise.



Courtesy of the U. S. Forest Service

GOOD AND BAD LUMBERING

Top.— On this area in the Black Hills National Forest, South Dakota, only the mature trees have been removed, the stumps have been cut close to the ground, and the brush resulting from lumbering operations has been piled preparatory to burning.

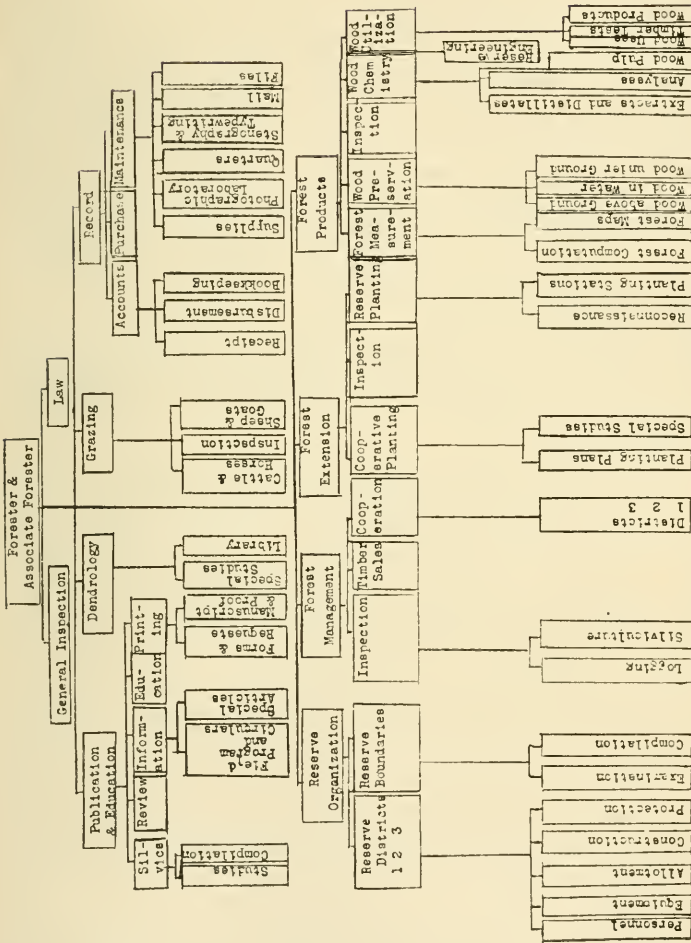
Bottom.— This slope was formerly forested. It is now being rapidly washed away as a result of destructive lumbering and overgrazing. The eroded gullies are from 10 to 20 feet wide and from 6 to 15 feet deep.

retical' scientist and pushed through Congress on an appropriation bill. For the fact that the United States finally got some national forests, with a scientific system of administration, credit is due, not to the wisdom of our national legislature, but entirely to administrative officials — Schurz, Cleveland, Sparks, Walcott, Fernow, Bowers, Pinchot, Roosevelt, and others; and these men had to fight Congress at almost every step." ¹

One agency which has been giving useful aid has been the Forest Service. In one recent year the Bureau of Forestry supervised a business totaling \$3,574,930.07. It directed the sale of wood, the grazing of cattle and sheep in the national forests, and the sale of uses of water power. It made extensive efforts to check fire losses, cared for game, and made extensive investigations and experiments in the interests of forestry. It administered altogether the interests of 155,374,602 acres, which was the net area of the national forests on June 30, 1918. In handling its great task the Forest Service is organized much as a great factory, store, or other business unit is organized.

Soil resources are important. — Space cannot be given to a discussion of the many conservation problems which have been illustrated by the resources considered. One problem of great concern is that of soil. The wise utilization of soil is as we have seen closely related to the use of forests. Erosion from poorly controlled water is one of the most serious losses of productive soil. Closely related to soil conservation also are the considerations of irrigation and drainage. The Department of Agriculture has estimated that there are some 75,000,000 acres of wet lands in the United States of which a considerable part can ultimately be reclaimed. Irrigation of arid lands has been practiced from earliest recorded time in Persia, China, India, and other countries. It is a very old device. There are probably about 16,000,000 acres in the United States which have been reclaimed by irrigation. Thirty million acres more

¹ John Ise, *The United States Forest Policy*, p. 370.



Courtesy U. S. Forest Service, Washington, D. C.

CHART OF THE ORGANIZATION OF THE FOREST SERVICE

can be made available by this means. Here again, however, we see that the problem of reclamation is linked with the problem of water and forest use.

The conservation movement.— Much of the discussion which within recent years has taken place regarding a better utilization of our natural resources and many of the devices which we are slowly and laboriously creating to reduce the losses which we now experience have grown up as part of what is called *the conservation movement*, which probably had its beginning in the Forest Service Movement. Its formal beginning dates from a conference of governors, suggested by Gifford Pinchot, "the father of conservation," and called by President Roosevelt in May, 1908.

The conservation movement as a whole has been summarized as follows by a former director of the United States Reclamation Service who has expressed his thoughts in terms of reconstruction after the World War.

"Conservation, and to a large part reconstruction, at the bottom is good housekeeping. It involves the idea of thrift and of good business management. The present age differs from those which have gone before in the appreciation of the need of careful and scientific study of natural resources, in the weighing of costs and benefits in utilizing these, viz., in the economics of their use. The time has passed when the well-informed man boasts of the unlimited resources of the country; it is no longer considered a mark of progress to permit the great coal beds to be carelessly mined, the forests to be freely burned and the rivers to be neglected. The study of the management of the affairs of the government and of the community with reference to the sources of income, expenditures and development of the natural resources has come to be appreciated as never before.

"It has been a characteristic American trait to expatiate upon the natural resources of our country. The vastness of the area and of the mineral wealth appeals to the imagination. It seems to reflect glory upon all who are so fortunate as to be in

such a great land. Unconsciously we take credit to ourselves for these resources as though the fact that we are living here attests our superiority over the rest of the world. It would be more fitting, however, instead of dwelling upon our own superior merit in being in such a country, for us to feel that these resources impose a corresponding obligation and a duty to utilize them in the best way for the welfare of mankind. . . . With the spread of reconstruction demands these ideals are being realized in part; we have reason to be greatly encouraged when we look back over the history of the past ten years and see the awakening of the public conscience and the support which has been given to the plans of conservation.

“Now, as never before, it is being appreciated that a nation like an individual cannot be rich without proper economy and that in public affairs, as in private, the rules of thrift, of good housekeeping, of good business management, must be observed.”¹

If we review the facts which we have been considering in the study, we shall see that the question of wise utilization of our natural resources is not an easy one to answer. Great quantities of our natural resources have been lost during our use of them and some will probably always continue to be lost. There seems little reason to believe that we shall ever succeed in making our mechanical and engineering devices so perfect that we can get 100 per cent use from all of our raw materials. A second point to be noticed is that it has paid in one sense at least to utilize resources imperfectly. Persons who have owned forests, coal fields, oil wells, and other raw materials have no doubt usually attempted to use them in the way which paid best. This has unquestionably given society many products at less cost than they could otherwise have been obtained. We have used our oil wells lavishly and our coal fields freely, but this is only another way of saying that we have had a high standard of living. We have obtained more than most other peoples for less effort expended. There is no denying, however, that

¹ Frederick Haynes Newell, *Water Resources, Present and Future Uses*, pp. 29-30.

even in terms of market considerations there have been losses due to recklessness and a lack of "market sense."

The question at issue is whether it is desirable for our present society to use its resources as rapidly as market influences suggest. Is it perhaps better for this generation to live less comfortably in the hope that the future may be in a better situation as a result? If one believes that such is the case, he will probably decide that our gain method of apportionment and private ownership are imperfect methods when applied to certain natural resources. If one believes this, there then comes the puzzling question: what methods will be more satisfactory than those now in operation?

PROBLEMS

1. What types of resources has society? List as many natural resources as you can. What types of society's resources seem most likely to last indefinitely?

2. "The most prominent features in modern civilization are closely connected with the use of forms of natural energy." What are the chief forms of natural energy? What are the most prominent features of modern civilization that seem closely linked with the use of these forms of energy?

3. What is our annual consumption of coal? The estimated supply? The percentage of supply already used? The estimated duration of supply? What factors throw uncertainty into attempts to estimate how long our coal supply will last?

4. Does it seem to you it would be desirable to forbid shooting from the solid and require by law more careful methods of mining? If more careful methods were required by law would our coal probably cost more?

5. Would we use more of our other social resources in securing our coal than we use when shooting from the solid is employed?

6. List some of the important agencies which are at work to improve our methods of using mineral wealth.

7. Of the "results for 1919" published by the director of the Bureau of Mines, which ones seem to you most significant?

8. "The nature of the resource demands integration . . . coal is a necessity which does not lend itself to competitive mining . . . coal demands coöperative measures of development." Explain what is meant by this quotation. What argument can be made for or against it?

9. Find out from a local gas manufactory how gas is produced. If this is impossible, get a report of gas manufacturing from an encyclopedia.

10. Suppose you were drilling for oil. Would you prepare a large storage tank before you had "struck oil"? What risks would you take if you did? What risks would you take if you did not?

11. What is meant by a "pool" in connection with oil geology? "It is the geology of oil which makes competitive drilling a wasteful method." Explain this statement.

12. Does it seem to you that the preceding statement is justifiable? Is it possible that "oil pools" should be handled as a "natural monopoly" comparable to the way in which public service utilities are handled in cities?

13. Make a list of some of the technical improvements which might result in less loss of coal; of oil. Would these technical improvements be desirable whether or not we continue to mine coal and oil competitively?

14. "The less coal we use, the more we conserve. The more water we use, the more we conserve." Explain this statement.

15. Does it strike you as depressing or cheering that there is so vast a supply of water power unused in the United States? Explain why.

16. If our coal and oil supply is exhausted, is it possible that we might build a civilization on the basis of water power? If so, is it quite likely that in such a civilization people would receive less goods than they do at present for the same amount of effort?

17. It is proposed to build a government hydro-electric plant at X. It has been pointed out that the sale of power from this plant cannot pay the market rate of interest on the cost plus operating expenses for at least twenty years. Do you think the plant should be built?

18. If we cease to use the market test regarding the use of our resources, what test shall we use and how shall we apply it?

19. Suppose you are interested in building a hydro-electric plant at Millville. You know that the success of your plant depends on a

uniform flow of water and that this in turn depends considerably on the continuation of forest growth over thousands of acres of land. Can you calculate closely the risks involved in building your plant? Can you control carefully the factors which would make your enterprise a risky one?

20. Would the engineering problem involved in conservation remain even if all water resources were developed and controlled by government?

21. Take the list of factors determining steadiness of stream flow which are given on page 433 and show how each of them affects the flow of streams.

22. Take the same list and indicate over how many of them we may hope to exercise a considerable degree of control.

23. Suppose that you owned a tract of forest. What risks would impel you to get the wood on the market? Would other forest owners be influenced by the same risks?

24. Explain how forestry is related to water power resources.

25. Explain the relation of forest use to the problem of irrigation.

26. Look up the Reclamation Service and be prepared to report to the class on its organization and work.

27. Does it seem to you that it will ever be possible to utilize completely those resources which we use in attempting to satisfy our wants? Will there always be some loss?

28. Explain what is meant by saying that the lavish use of our resources is one basis of "the American standard of living."

29. Suppose you wish to make a rough table five feet long, three feet wide, and thirty inches high. You have as material for the legs, one 2×4 twelve feet long, you also have two boards ten inches wide and twelve feet long. What proportion of your material will you lose in manufacturing? Can lumbermen or factory manufacturers work without loss of material?

30. What are leguminous crops? Is there an agricultural college in your state? If so, get some information concerning its work. Do the same for agricultural experiment stations in your state. Is there a "county farmer" agent in your county? If so, what are his duties?

31. Make an outline of the main points in the lesson.

REFERENCES FOR FURTHER STUDY

Annual Reports and Bulletins of the Forest Service.

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STUDY XXIV

THE WISE UTILIZATION OF HUMAN RESOURCES

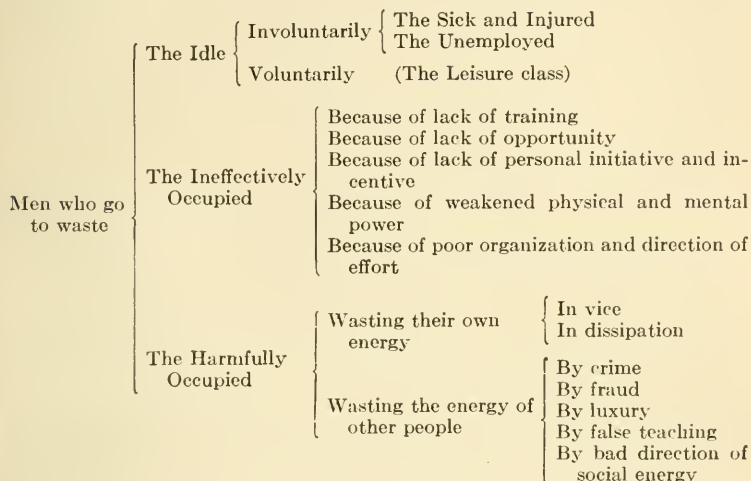
PURPOSES OF THIS STUDY:

1. To examine some of the more important ways in which our supply of human resources is lost and wasted.
2. To observe some of the many agencies that are coming into use to lessen these losses and wastes.

Important as it is that we should utilize wisely our natural resources, it is even more important that we should conserve our human resources. When wars are being waged, we hear much of man-power. The whole country organizes so as to utilize to the best advantage its labor power, its professional men, its business men — all its human resources. The soldiers are carefully selected and are trained for months to make them efficient fighters. Both their health and their spirit are carefully cultivated. The person who is unwilling to do his share, whether as soldier or as civilian, is regarded as a "slacker," and he who is unable to share in the common effort is an object of pity. In times of peace, however, we do not so thoroughly appreciate the value of our human resources. Apparently we have not yet caught the full significance of the fact that man engages in *active* adaptation (see Study I) in his effort to gratify wants, and that in consequence wise utilization of his powers is of great importance. If we had caught the full significance of this fact, it is hard to believe that our human resources would be used so wastefully.

Men go to waste in many ways. — It is not easy to make a simple statement that will cover even approximately the various forms of waste. Human activities are multitudinous, very complex, and not easy to evaluate. The following diagram

will serve to sketch some of the more obvious kinds of the wastes of our human resources.



SOME FORMS OF HUMAN WASTE¹

There is no way of estimating with any accuracy what these wastes cost society. For only a few of them have we ever made even the roughest computations. We cannot even guess, for example, how much society loses because of inadequate training of its members (notice again the statements made on p. 330 concerning the training of its enterprisers); because of vice and dissipation; because of crime, fraud, and false teaching; because of poor organization and direction of effort; because of lack of opportunity to develop one's full powers; or because of voluntary idleness. We simply know that these losses are so enormous that, taken in connection with such losses as are described below, it may well be that we are not utilizing effectively more than 20 per cent of our human resources. Some persons have put the figure as low as 3 per cent. No figures are very trustworthy on such a matter.

¹ This diagram is a modification of that of Carver in his *Principles of Political Economy*, p. 64. It is realized that in part this diagram shows a presumption in favor of producing goods for others rather than self.

Human resources are wasted through idleness. — Downright idleness, whether voluntary or involuntary, is a great source of waste. There are the vagrants and the idle rich who will not work; those handicapped through sickness and injury who cannot work; the unemployed who are temporarily out of work because of some fluctuation in our industrial structure.

An illustration of what society may lose through the idleness of its capable members is well set forth by Carver.¹

“Let us consider the case of a great surgeon. The author has such a man in mind. He is so skillful and so capable that his services are sought by large numbers of people. He could have retired years ago and lived in elegant leisure on his accumulated wealth. Had he chosen to do so, some hundreds of people would have been deprived of the benefit of his skill. Had he been a man of mediocre ability, it would not have mattered much; but a man of mediocre ability could not have accumulated enough to be able to stop working. The fact that this brilliant surgeon is so much needed is the very thing which would have made it possible, if he had been a man of perverted morals, to stop working; but that is the very reason why he should not stop. There seems to be no solution of the problem, except sound moral standards which will keep such men busy. If they lack sound moral standards, even compulsion would not call forth their best efforts. That which has been said of our great surgeon may be repeated of any great man in any useful occupation.”

Preventable accidents, illnesses, and deaths cause great wastes. — Some interesting computations have been made concerning the annual cost to society of preventable illnesses and deaths.² “It has been estimated that it is possible to prolong life 15 years. This is equivalent to reducing the death rate by about one fourth and this estimate is but a minimum. . . . In the United States alone, as regards tuberculosis, the gross loss of earnings by illness and of potential earnings cut off by death, together with the expenses of illness, etc. amount to over

¹ Carver, *Principles of Political Economy*, pp. 71-72.

² Irving Fisher, *National Vitality, Its Wastes and Conservation*, in Report of the National Conservation Commission (1909), Bul. 30.

\$1,000,000,000 per annum.¹ Dr. G. M. Kober thinks it conservative to say that the annual cost of typhoid is \$350,000,000 and Dr. L. O. Howard believes that malaria alone costs the country \$100,000,000 annually, and the insect diseases generally \$200,000,000. . . . Unfortunately there are no exact statistics of preventability. We feel safe, however, in concluding that at least half a billion could be saved from the present cost of illness. This, added to the loss by preventable deaths of potential earnings of a billion gives at least a billion and a half of preventable waste. This does not include the losses from inefficient work due to drunkenness or other vicious habits; nor does it include the cost of 'undue fatigue' which we have some reason to believe exceeds in its effect on efficiency the loss from illness. The actual economic saving annually possible in this country by preventing needless deaths, needless illness, and needless fatigue (serious and minor), is certainly far greater than one and a half billions and may be three or four times as great."

In this connection we must not overlook the accidents attendant upon modern industry. One of our methods of production is that of machine industry. Modern technology has harnessed the forces of nature and these forces are so resistless that when they escape control, their power of destruction is very great. The great machines that are driven by these forces in modern factories are so complicated that the worker cannot comprehend and understand them and control them as he did the simple tools of other days. This lack of understanding leads to accidents. Almost all machines are used interdependently. One is operated by another. A fellow workman starts an engine in another building and a machinist's hand is crushed in the machine he is cleaning. A fellow miner is careless with dynamite and a dozen men are killed. An inspector in a steel mill is ignorant, passes a defective steel beam, and a score of workers using this beam in bridge construction are precipitated into a swollen river.

¹ Note that all computations in this discussion are at the relatively low-price levels of, say, 1908.

These considerations are so serious that, so it is estimated,¹ in 1913 there were more than 25,000 fatal industrial accidents among American wage earners and some 700,000 injuries involving a disability of a month or more. This loss from accidents involves not merely the loss of labor power but also the cost which comes to the community in caring for the injured or dead. And there are often still other serious results. For instance, if a coal miner is killed, his family is frequently left destitute; the children cannot afford to attend school; they grow up ignorant, unable to earn a good living and may even be led into habits of vice and crime which bring to society a further loss and waste.

Unemployment a source of waste. — Those who are temporarily out of work because of some fluctuation in our industrial structure constitute a great waste of our human resources. There are many such fluctuations. Even when industry as a whole is growing, certain fields are waning, and the persons, both enterprisers and workers who are in these fields, must seek different openings — generally with an attendant period of unemployment. Then, too, changes in processes and in technique, and changes in the location of industries are continually taking place and all such changes are likely to mean unemployment. In general, the risks which must be met by our enterprisers (see Study XXI) are also risks for our workers. A burning factory, a crop-destroying storm, a bank robbery, or a forest fire may each spell unemployment and hard times for the worker. Whatever tends to make capital unemployed tends to put the worker out of employment.

Worthy of particular mention are the so-called seasonal and cyclical fluctuations in industry. When a seasonal business becomes less active at the close of the season, men and women are out of work as a result. In the canning industry, government documents report that about 150,000 persons are employed during September. In January only about 20,000 are so em-

¹ F. L. Hoffman, *Industrial Accident Statistics* in Bulletin of the United States Bureau of Labor Statistics, No. 157.

ployed. In the lumbering industry, which flourishes during the winter, great numbers of workers become unemployed with the melting of the snow. Hundreds of men "go west" in the summer to work in the harvest fields and return to the cities, out of employment, when the wheat of Kansas, the Dakotas, and Minnesota has been harvested. Similarly the building industries, truck gardening, and coal mining, being seasonal occupations, first employ and then release, to make new adjustments, thousands of employees each year.

The expression "cyclical fluctuations" has reference to those alternating periods of "good times" and "bad times" which have been so characteristic of our modern economic organization. The "bad times" are times of very serious disruption of industrial activity and accordingly times of very serious unemployment.

Even in so-called "normal" times, there is a very considerable unemployment. If we go back to the period of relatively stable conditions prior to the Great War, we find that a commission reporting in 1911 on New York conditions estimated that "in ordinary years of business prosperity, out of every 100 persons in industry 60 will be steadily employed; 40 will be working irregularly. On any given day during the year at least 3 per cent of our wage earners are involuntarily idle. Usually there are 10 per cent."¹ This, in itself, is a great waste, but there must be added the wastes coming from the facts that often the unemployed person loses efficiency during the period of unemployment and that the lessened income may have for the family concerned effects similar to those sketched on the opposite page for industrial accidents.

Our powers are ineffectively utilized. — The cases shown on p. 449 in which men go to waste through being ineffectively occupied or harmfully occupied are probably self-explanatory with the possible exception of those who are ineffectively employed because of lack of personal initiative

¹ Adapted from New York State Commission on Employers' Liability and Unemployment, Report of Committee on *Unemployment in the State of New York*, p. 38.

and incentive. After all proper allowance has been made for the fact that there is waste due to overfatigue, it still remains true that there is much waste due to our making a beggarly use of our latent powers. Generally this is due to lack of incentive, — either to a lack of constructive imagination and initiative on our own part or to the lack of an appropriate incentive (whether wage, or praise, or promotion, or something else) being supplied by our “superior officers.” Herein lies a fruitful field for the cultivation of “will to do” on the part of each of us and another fruitful field for our enterprisers to cultivate in dealing with their workers.

One of our psychologists writes as follows:¹ “Actual instances prove that great increases of work and results can be secured by outside stimulus and by conscious effort.

“If there is one place where the limit of exertion can be counted upon, it is in an inter-collegiate athletic contest. While taking part in football games, I frequently observed that my team would be able to push the opposing team halfway across the field. Then the tables would be turned and my team would give ground. At one moment one team would seem to possess much superior physical strength to the other; the next moment the equilibrium would be changed apparently without cause. Often, however, the weaker team would rally in response to the captain’s coaching. On the field a player frequently finds himself unable to exert himself. His greatest effort is necessary to force himself to work. In such a mental condition a vigorous and enthusiastic appeal from the coach may supply the needed stimulus and stir him to sudden display of all his strength.”

“Many men have never discovered their reserve stores of strength because they have formed the fixed habit of quitting at the first access of weariness.

“Our best energies are not on the surface and are not available without great exertion. We have to warm up and get our second wind before we are capable of our best physical or mental accomplishments. All our muscular and psychical processes are dependent upon the activity of the nervous system. This activity seems to be at its best

¹ Walter Dill Scott, *Increasing Human Efficiency in Business*, pp. 9-15.

only after repeated and vigorous stimulation and after it has reached down to profound and widely distributed centers.

“When an individual succeeds in tapping his reserve energies, others marvel at the tremendous tasks he accomplishes. They judge in terms of superficial energy, and for such the results would, of course, be impossible, even though many of the admiring spectators could actually equal or excel the deed.”

“The steel blade that is used seems to last as long as the one which is allowed to lie idle. The wearing out in the one case does not seem to be more destructive than the rusting out in the other.

“We have a choice between wearing out and rusting out. Most of us unwittingly have chosen the rusting process.”

Wastes are particularly significant among the workers. — Quite clearly, the wastes of our human resources are not confined to a single class in the community. They are applied generally. It so happens, however, that they are particularly significant in the case of that class or group we call *the workers*, partly because they form the bulk of our society, partly because many wastes act with particular virulence in that group. This is particularly true of accidents, unemployment, and even disease.

The very position of the worker in our society is such that we must watch our adjustments carefully if waste is to be avoided. He is no longer in the position of the independent craftsman (see Study IV) who owned the raw materials on which he worked; owned the tools with which he worked; owned the products he made; and fixed for himself the circumstances and conditions of his labor. He is not even in the position of the apprentice of former days, for the whole organization of business of that day was calculated to pass the worker through the period of apprenticeship and make him an independent master craftsman, controlling, very largely, the conditions which surrounded him.

In our study of the rise of machine industry we learned how all of this changed with the incoming of the modern period. The discovery of America and other new lands, the improve-

ment of ships, the invention of the compass, the invention of the astrolabe, the incoming of other inventions which widened the market, placed buyers and sellers hundreds or even thousands of miles apart. Thus, it became impossible for the ordinary craftsman to know enough about market conditions to sell his goods to the best advantage. We have learned how functional specialists began increasingly to perform the tasks which the craftsman had, in the small market, performed for himself. In our study of the clothier (see p. 81) we saw the average worker put into a more "dependent" position than he had been before, while the clothier who owned the raw material and knew where to sell the goods, controlled, in large measure, the efforts of the workers. Finally with the invention of the great labor-saving machines, the factory system was ushered in. As machine manufacture took the place of tool work, the simple artisan had no choice but to work for those who could buy the new machinery and build the huge factories required to house it. Thus the artisan became a wage worker, dependent upon some one else for employment.

Once we see that the worker is dependent upon employment, it is easy to see that he can fare well only when capital is busy. When factories, railroads, and machines are working busily there are jobs for workers, but when capital is idle the worker is in trouble. For our present purposes, the significant thing is that he is in most cases not responsible for the trouble nor can he do a great deal to remove its causes. It is hard to believe that a man enmeshed in such a net of impersonal factors which he can affect but little will retain his full sense of initiative and "will to do." The situation must be carefully safeguarded or effective incentive will be lacking. Our managers of industry have not yet fully sensed this situation. Only the more progressive have seen that "wage" is a weak incentive, and that it must be supplemented by pride in work, consciousness of achievement, sense of responsibility, sense of growth, loyalty to leadership, and all those other intangibles that make a man feel like a man who *lives* rather than one who *exists*.

But the situation of many of our workers is not merely one in which incentive may become weak. It is also one from which there may in too many cases result weakened mental and physical power (see diagram, p. 449) due to economic insufficiency. A well-known economist, writing of conditions as they were



THE NEW YORK BREAD LINE

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Scenes of men seeking the aid of charity become common in periods of extended unemployment.

prior to the Great War, presents startling evidence of human waste due to economic insufficiency.¹

“It is poverty in the sense of economic insufficiency — its wide extent, its assumed necessity, its tragic consequence — that forms the real problem. There are great bodies of people in country and in city who from birth have less than enough food, clothing, and shelter; who from childhood must toil long and hard to secure even that insufficient amount; who can benefit little from the world’s advance in material comfort and in spiritual beauty because their bodies are

¹J. H. Hollander, *The Abolition of Poverty*, pp. 1-8.

undernourished, their minds overstrained, and their souls deadened by bitter struggle with want. These are the real poor of every community — the masses who, not lacking in industry and thrift, are yet never really able to earn enough for decent existence and who toil on in constant fear that bare necessities may fail.”

“Appalling in its own misery, this mass of poverty takes on even greater significance as the supply source of pauperism. Not only is the interval between insufficiency and dependence at all times narrow, but the inability to provide against mishap or calamity, indeed the very conditions of body and mind which grow out of undernourishment and overcrowding make fatally easy the transition from self-support to dependence. Poverty has thus been likened to a treacherous footpath encircling the hopeless morass of pauperism. Those who tread it are in constant danger, even with the exercise of care and foresight, of falling or of slipping or of being crowded off. This insecure foothold, once lost, is not likely again to be regained; the fallen are added to the wretched of body or chronically dependent.

“The probable amount of such poverty is as impressive as its evident quality. In the unfortunate absence of any direct enumeration, recourse must be had to reasonable computation. The remarkable study of the nature and extent of poverty in the United States made by Robert Hunter ten years ago, and still the only serviceable survey of the subject, sets forth that, in the industrial commonwealths of the United States, probably as much as 20 per cent of the total population are ordinarily below the poverty line. If one-half of this estimate be applied to other commonwealths, the conclusion is that in fairly prosperous years ‘no less than 10,000,000 persons in the United States are in poverty.’ In this computation a purely physical standard — ‘a sanitary dwelling and sufficient food and clothing to keep the body in working order’ — defines the poverty line, with no monetary allowance for intellectual, aesthetic, moral, or social requirements.”

In thinking of this waste we must bear in mind that its evil effects are cumulative. The family concerned has small opportunity to give its younger members training and opportunity; sickness has an easier fight with weakened bodies; the waste of human power in one generation is likely to cause an even greater waste in succeeding generations.

Waste is being reduced in many ways. — Any one who comes in contact with the facts concerning unemployment, injury, sickness, and economic insufficiency will feel depressed, not only by the sense of personal suffering which is endured, but by the social loss which is constantly occurring. The picture has, however, a brighter side. Great as are our wastes, it is hard to believe that they are as large as those of the past. As for the future, we are certainly working on the problem, and with many good results.

It will be interesting to glance at a few of the structures and institutions which are concerned with the prevention of the waste of human resources. In working through the very incomplete list which follows we ought to be alert to add others and to check the list back with the diagram on p. 449.

1. There should be mentioned first of all the development of knowledge upon the character of the problem and then the development of sound social and individual attitudes towards its solution. The development of a sound moral sense upon such matters as dissipation, laziness, trickery, etc., will probably be more effective than any other means of reducing such wastes.

2. In the prevention of unnecessary accidents, sickness, and deaths a very noteworthy progress has occurred. There are factory laws and inspection laws which require factory owners to protect their machinery with safety devices, to have proper ventilation, lighting, and construction of their buildings for safety. The inspection laws usually provide that inspectors paid by the state shall visit these factories to ascertain that the laws are obeyed. There is also the "safety first" movement and the National Council of Safety which is going far beyond legal requirements in the protection of human resources. The modern emphasis upon preventive medicine which centers its thought upon the *prevention* of disease is a highly significant movement, as is also the establishment of a national public health service and state and municipal boards of health. Housing regulations, medical inspection of school children, the increased study of personal and public hygiene, and national prohibition are but

the beginning of a long list of achievements looking toward human conservation.

3. As for the reduction of unemployment, not a few things are being accomplished. Every device which we considered in Study XXI that would aid in lessening capital risks is an aid in reducing unemployment and the losses which it involves. Market news through trade journals, crop reports, consular service, the Bureau of Markets, the Board of Trade, and many other channels are aids in steadying industry, in keeping capital employed, and thus in assuring employment for the wage worker. Insurance, risk lessening contracts, and sprinkler systems must all be regarded as lessening the risks of loss through unemployment. More obviously bearing upon the problem, however, are such matters as the establishment of public employment offices charged with bringing together the workers seeking employment and the manager seeking workers; the establishment of employment departments by business houses; and the regulation of output by a firm so as to avoid extreme seasonal fluctuations.

Private employment agencies, such as all of us have seen, are of aid (sometimes of doubtful aid) in marketing labor power. Newspapers through their want columns, and the trade papers of workers and labor unions, such as the Molders' Journal, also convey information which helps workers in selling their ability to advantage. All of these agencies aid in keeping men employed and in reducing the losses which come from unemployment. Much, however, needs to be done before our social loss from unemployment will cease to be a serious waste.

4. There is almost no end to the list of agencies devoted to diminishing the number of the ineffectively employed. There is the consumers' league which urges the public to buy only from firms that make goods under good standards of the use of labor power. The vocational guidance movement looks toward the placement of persons in pursuits in which they will be effective. Insurance devices of many sorts, both public

and private, have come in to help tide people over the expenses connected with accidents, sickness, and even unemployment, and thus prevent some of the wastes connected with economic insufficiency. Directed toward the same goal are minimum wage laws which have been passed in a number of states requiring that no worker shall be paid less than a certain sum of money per week. It has been the effort of the framers of the minimum wage laws to make the wage high enough so that the "real income" of the worker is a "living" income.

5. The labor unions, also, do many things which bear helpfully upon the problem. In addition to their so-called collective bargaining work, many of them promote the welfare of their members in other ways, such as the payment of benefits when their members are sick, out of work, or disabled by old age. They have also played their part in bringing about action by society as a whole. They have influenced legislation, combated child labor, fought excessive hours, and striven for safeguards against accident and for proper sanitation in factories. It has been said of them that they are impersonal devices to enable the worker to cope with the impersonal situation in which he finds himself in our modern society.

6. Particular mention ought to be made of a new factor in business management which is being increasingly used. More and more our business units, and especially our large business units, are establishing a department called "personnel" designed to rank with sales, finance, and production as a major part of the business organization. The head of the new department, variously known as "the director of personnel," "the employment manager," or "the manager of industrial relations," is charged with the duty of securing and maintaining an effective working force. He seeks to get the right man; to put the right man in the right place; to secure the right conditions of work both in terms of physical surroundings and in terms of the development of the will to do; to give the right training for the various tasks; to develop in general the right relations between the plant and

the men. Business houses have found that such a department is very profitable because it results, where well conducted, in increased output at lower cost. Society is interested in seeing such departments put into business organizations because of the saving of human resources which results. The character of these savings may be seen from the accompanying chart of the functions of an employment department. Upon examination of this chart you will find that the personnel manager has to do with many forces which tend to lessen the waste of our human resources.

What one state has done in one corner of the field. — We see clearly enough that in the conservation of our human resources there must be action taken by individuals, by small groups, by larger groups, and even by the state. We see also that the issues are larger than the conservation of our "labor power" in the narrow sense of the term. We need also conservation of the human resources found in our professional men and in our managers. Keeping, now, the broad aspects of the whole problem before you, you will find it interesting to see what one state did in one and one-half decades¹ in *one part* of the field, in that *one form* of social control known as law.

"1897. Child labor law enacted covering not only factories but offices, laundries, mercantile establishments, and stores, and fixing maximum hours of labor of children under sixteen years of age at ten per day and sixty per week.

"1897. Act passed requiring the installation of blowers to remove dust from metal polishing, buffing, and grinding wheels.

"1901. Child labor law strengthened and all establishments required to provide suitable seats for women and girls.

"1903. Present child labor law enacted.

"1907. Factory Inspection Department established as separate department of the state government and its powers extended.

"1907. Present law providing for health, safety, and comfort of workers in factories, mercantile establishments, mills, and workshops enacted.

¹From *Industrial Conditions in Springfield, Illinois*, pp. 141-143. (Russell Sage Foundation, 1916.)

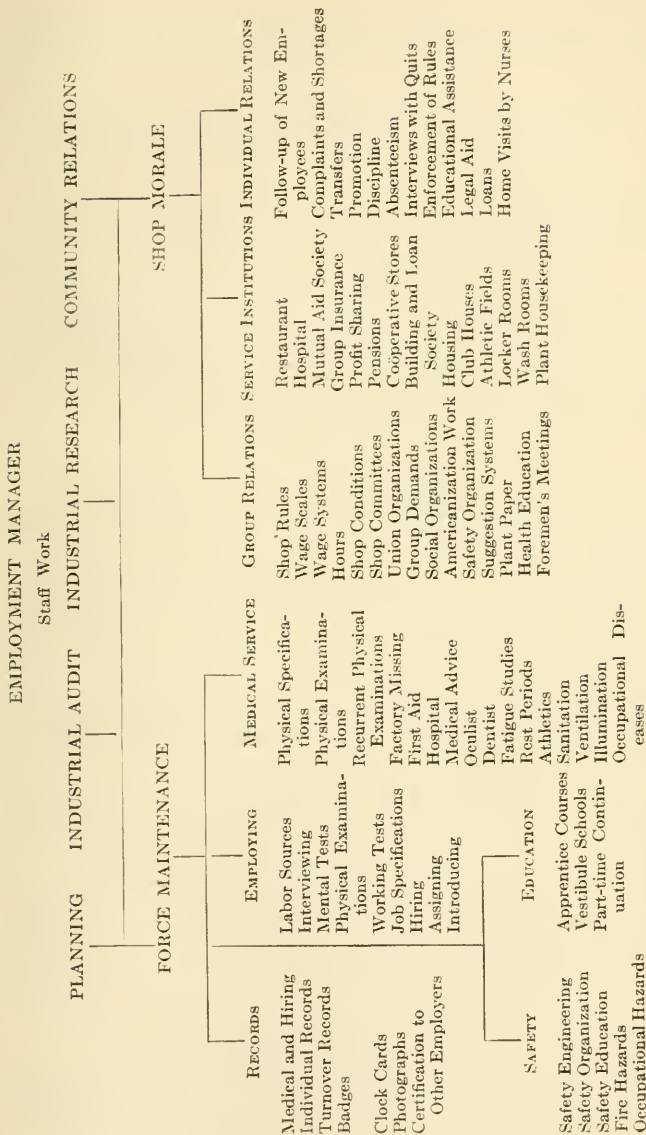


CHART OF FUNCTIONS OF AN EMPLOYMENT DEPARTMENT ¹

¹ Taken from Bulletin 50, Employment Management Series No. 1, of the Federal Board for Vocational Education.

"1907. Act passed to provide for the safety of persons engaged in construction, alteration, or repair of buildings, bridges, viaducts, and other structures.

"1908. Act passed preventing employment in coal mines of persons who have not been passed by a State Miners' Examining Board.

"1909. Law enacted fixing hours of work of women in factories and laundries at ten per day.

"1910. Act passed providing for fire-fighting equipment in coal mines. Later amended and strengthened.

"1911. Women's ten-hour law extended to cover mercantile establishments, hotels, restaurants, offices, and other enumerated places.

"1911. Law enacted to protect workers from occupational diseases.

"1913. Act passed consolidating and strengthening laws to provide for safety and welfare of workers in coal mines.

"1913. Present workingmen's compensation law enacted."

PROBLEMS

1. What is meant by saying labor power is part of our store of social energy?

2. Is waste of labor power involved in (a) the care of the sick; (b) the care of persons too young to work; (c) the care of persons too old to work; (d) compulsory school attendance; (e) premature death; (f) debauchery?

3. If, as a result of laziness, lack of education, or lack of opportunity, a capable man is working in a trade for which he is not suited, are you and I affected by that fact? Explain your answer.

4. What judgment, considering the matter from the point of view of production, is to be passed on an *idle* rich man? Is it upon the whole fortunate or unfortunate that there are such people in society?

5. Who looks after the health and strength of people? Do parents? Do factory owners? Do school authorities? Do city authorities? Do others? If these persons do look after the health and strength of people, why do they?

6. Have amusements any relation to individual efficiency? Have public parks? Bathing beaches? Churches?

7. Look in the general histories and find out about the great plagues which used to spread through Europe and Asia. Why were these plagues more common in earlier days than now?

8. One of the great discoveries of modern times is a whole series of disinfectants. Find out about some of them.

9. Find out about the health authorities in your town. What are their duties? In what ways does your school give special attention to matters of health?

10. Can it be possible that certain localities in the Orient are a menace to us? Is American public health work in other countries justified in any measure by the advantage which we ourselves gain from this work?

11. "Laws are sometimes necessary in order to protect us against our own ignorance." Show how this is illustrated by health laws.

12. "Relaxation is more difficult to secure in a modern community than it was in earlier days when people lived in the country." Is this statement true?

13. Among the amusements provided in your town can you describe some which do not help the health of the community?

14. Name as many occupations as you can which are very dangerous. Name as many occupations as you can in which there is very little danger.

15. Give as many instances as you can of cases where employers can by proper action lessen the amount of sickness among their workers.

16. Give as many instances as you can of cases where the government can by proper action lessen the amount of sickness among the workers.

17. Give as many instances as you can of cases where the worker himself can by proper action lessen the amount of sickness he experiences.

18. Show why long hours and fatigue increase the dangers of industrial accident. Do they increase the dangers of occupational diseases?

19. What difference does it make to you or me whether we have "safety first" for human resources?

20. In every factory a certain number of machines break and wear out each year. The manufacturer counts such loss among his costs, and tries to raise his selling price accordingly. Is this fair?

21. In every factory a certain number of workmen are injured and killed each year. If the factory owner pays or compensates these injured workmen, or their families, is it fair to add these expenses to the selling prices of his goods?

22. Is it merely machine industry which is dangerous? Is chemical industry dangerous? If it is, can you name any specific dangers of chemical industries?

23. What are the causes of unemployment? What is meant by saying its consequences are cumulative?

24. Because of a strike 3000 workers are idle. Is this a case of unemployment? Is it a case of a waste of human resources? If it is, is there any defense for a strike?

25. Several states have set up employment bureaus. How do such organizations fit in with the problems raised in this lesson?

26. Suppose your father should become unemployed; find out what effect this would be likely to have upon him; upon you.

27. What is meant by calling unemployment a "waste of human resources"?

28. We hear much of vocational guidance. What bearing has vocational guidance on the matters raised in this lesson?

29. If all children over 10 years of age were put to work at once, would the labor power of the country be greater? Do you think it would be greater 15 years from now than it otherwise would have been? Fifty years from now?

30. Does it not seem hard-hearted to enforce a law that a child must go to school when the family needs very badly the money the child could earn at work?

31. It is still a rule of law in some states that a worker who is injured cannot recover damages at law if a fellow workman's negligence has contributed to the cause of the accident. Do you think this is a fair law to apply to modern industry?

32. It is still a rule of law in some states that a worker when he takes a job "assumes the risks of the occupation," and that as a result he cannot recover damages at law if he is injured in the course of his work. Does it seem to you that workmen who seek employment in a steel mill or other large factory can make a correct valuation of the risks involved?

33. The legal precepts stated in 31 and 32 grew into our law when tools were simple and when the size of manufacturing units was small. With this fact before you do you see what is meant by men who say that such laws represent an outgrown philosophy?

34. It is sometimes said that the greatest difficulty with the situation in which labor finds itself is that its uncertainties and insecurities are cumulative. What does this mean? Does it seem true to you?

35. Make an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: Selections 201-245.

Bureau of Education, *Lessons in Community and National Life*.

Series A, Lesson A-5, Reticker, "The Human Resources of a Community."

Lesson A-9, Wright, "Social Control."

Lesson A-28, Lyon and Hitchcock, "The Worker in Our Society."

Series B, Lesson B-8, Burgess, "Finding a Job."

Lesson B-30, Hammond, "Employment Agencies."

Lesson B-31, Reticker, "Employment Management."

Series C, Lesson C-8, Park, "Preventing Waste of Human Beings."

Lesson C-19, Bramhall, "How the City Cares for Health."

Lesson C-30, Andrews, "Social Insurance."

The teacher who desires to do so may readily give additional lessons on the position of the worker in our society from the foregoing references and from Taussig, *Principles of Economics*, revised edition, Bk. VI; Ely, *Outline of Economics*, 3d revised edition, Chaps. XXII and XXIII.

STUDY XXV

PLANNING, GUIDING, AND CONTROLLING

PURPOSES OF THIS STUDY:

1. To see that societies may move toward objectives.
2. To attempt to ascertain our present-day social objectives.
3. To see by what methods we may approach our changing objectives.

As we come to the conclusion of this study of our economic organization, certain questions naturally arise in our minds which lead us beyond a mere description of its parts and how these parts are assembled. What is it all for? Are we merely trying to keep alive? Are we trying to do more? Has society any ideals or ends or goals or objectives toward which it works or is it blindly groping about? If there is some ideal or pattern to which we hope to have our economic system conform, what is it? How was it obtained? What methods can we use to help us modify our present system and make it more as we wish it to be? Will the pattern change? These questions lead us into a discussion of the planning, guiding, and controlling of our economic activities.

Groups do have objectives. — Let us begin by noticing that it is possible for groups to have ends or goals in mind and that they do use means to attain these ends. Sometimes the members of a family make up their minds that they will work for a definite purpose; perhaps to send the children to college, perhaps to finance a trip to Europe five years in the future. Where such an idea is firmly fixed in the minds of all the members of the family, work and expenditures are planned to make the realization of this ideal possible. Each member of the family guides his conduct in large measure by its effect on the accomplishment of this objective. If some course of action helps

the family reach its goal, it is called a good policy. If it hinders the realization of the family objectives, it is considered a bad policy.

Communities also have goals. There is a small city in Illinois through which three large railroads pass. Accidents were frequent at the street crossings and the town's people became imbued with the idea that the railroad tracks should be elevated. Each time an accident occurred, or even when traffic was blocked by long freight trains, there was warm discussion of the subject. The newspapers took up the matter, public meetings were held to boom track elevation. When a man in the city entered the race for mayor or alderman one of the first questions that was asked was, "How does he stand on track elevation?" To recommend him it was only necessary to show that he favored the plan. To damn any man in the community it was only necessary to show that he was opposed to this community ideal. Finally, one man, while mayor, succeeded in getting the railroad heads to sign an agreement to elevate the tracks and build a union station in the town. The achievement made him locally famous—he had played a large part in accomplishing the community objective.

National ideals and methods are clear-cut in times of war. — Families and communities are not the only groups which set up ideals and objectives. Nations become imbued with purposes and these purposes become national ideals or aims. These national aims are likely to become quite definite and plain in time of war. In our Revolution, for example, men thought they were not properly treated by the British government and sought independence. They were willing to risk their whole economic system in the hazards of war, and in fact did so risk it, to accomplish their object. In the War of 1812, other ideals were at stake. It was said that we must determine once for all our claims for "free trade and seamen's rights." In the Civil War, the North as a community expressed their ideal in the words, "The Union must be saved," and in those other words of Lincoln, "No nation can exist half slave and half free."

In the South, the community ideal was an opposing one. The objective of the South was to establish the rights of individual states as opposed to the Union as a whole. The phrase "state sovereignty" expressed their objective. Both sides risked everything to accomplish their ends.

Perhaps a great community objective was never better expressed than by President Wilson in his address of April 2, 1917, four days before the United States declared war on Germany.

"We are now about to accept gauge of battle with this natural foe to liberty, and shall, if necessary, spend the whole force of the nation to check and nullify its pretensions and its power. We are glad, now that we see the facts with no veil of false pretense about them, to fight thus for the ultimate peace of the world and for the liberation of its peoples—the German people included—for the rights of nations great and small and the privilege of men everywhere to choose their way of life and of obedience.

"The world must be made safe for democracy. Its peace must be planted upon the trusted foundations of political liberty.

"We have no selfish ends to serve. We desire no conquest, no dominion. We seek no indemnities for ourselves, no material compensation for the sacrifices we shall freely make. We are but one of the champions of the rights of mankind. We shall be satisfied when those rights have been made as secure as the faith and the freedom of the nation can make them. . . .

"It is a fearful thing to lead this great peaceful people into war, into the most terrible and disastrous of all wars, civilization itself seeming to be in the balance. But the right is more precious than peace, and we shall fight for the things which we have always carried nearest our hearts—for democracy, for the right of those who submit to authority to have a voice in their own governments, for the rights and liberties of small nations, for a universal dominion of right by such a concert of free peoples as shall bring peace and safety to all nations and make the world itself at last free."

The illustrations of national goals which have just been used have been chosen from the ideals which have been before our nation in time of war. It is at such a time that we see most clearly that such goals exist.

Not only are war-time objectives usually definite and plain; their attainment also appears possible by a definite and plain method—the defeat of the enemy. We are well aware that the accomplishment of this involves bringing to bear upon the task all our social resources: our men, women, and children, our transportation, our forestry, our agriculture, our manufacture, our schools, our churches—everybody and everything. The nation consciously organizes for the task. All other things are made subordinate to the great central aim.

Our social objectives difficult to formulate.—When the stress of war or of other similar emergency has passed, our social objectives lose clearness of definition. Presumably they are still present. Certainly history shows that there have been in the past, movements of societies in certain directions. In the historical part of this book we have seen an illustration of this in the movement of western civilization away from the self-sufficing manorial economy to our modern interdependent coöperation of specialists, with all that connotes. Even if such movements of societies are nothing more than aimless drifts, it would be worth while for us to-day to try to see the direction of our own drift. And if such movements can be controlled or guided to some extent, as most of us believe, even more should we be interested in a navigation chart for our voyage.

Can any one state our present-day social objectives? It is not easy to do. We seek “social development” but that is a very vague, many-sided thing. When we look at it we see things but dimly—we see “men as trees walking.” One reason why we are in doubt concerning precisely what we wish to accomplish is that we are somewhat undecided concerning the bearing of the lessons of the past. We are in the midst of probably the greatest changes the world has ever seen and we are not certain how far the formulæ of the past will fit the new conditions. Then, too, we do not yet know a great deal concerning what are called, vaguely enough, social forces, so that we have some hesitation about drawing up new formulæ of our own. We get little help in our thinking by turning to the various

specialized groups of our society and asking them what goals should be set up. True, these groups are likely to have somewhat definite aims and some of them are trying their best to make over the economic order to suit their plans. There is, for example, the union labor group. This group has some very definite ideals. On the other hand, there are employers' associations whose ideals are frequently opposed to those of the labor unions. There is also a group that is primarily interested in foreign trade. The farmers have certain interests in common and they are attempting to make our economic system one which will be to their benefit. Unfortunately many of the wishes of these various groups, and of others, are in conflict. It is easy to set out the ideals and objectives of each of these specialized forms of producers, but it is difficult to reconcile all of their purposes into a common purpose. In part, however, our social objectives are made up from the objectives of smaller groups. "The bitter cry of the children," the complaint of the worker, the demand for a square deal by the business man have all been heard and they tend to get fused into our notion of what is right.

There are a number of objectives and ideals upon which all can agree at least in words. All of us wish our country well; all of us feel that the prosperity of our nation will be in a way reflected to all classes, and all groups are desirous of seeing the "country prosper." There are some intangible objectives on which all agree. We frequently hear stated as one of America's ideals, "Equal rights for all and special privileges for none." Nearly any one in America will say that he believes in a "square deal"; that he is a champion of "fair play" and of "justice," but we disagree concerning the meaning of such terms. For example, what seems to some laboring men to be a square deal may appear to some manufacturers as anything but square.

In spite of the difficulties of formulating common aims for a social group which is diversified and specialized, a number of attempts have been made to set forth ideals towards which it is

believed all of us would be willing to help guide our social system. Among the aims which we may state as those of interest to at least a great number of people are the following:¹

1. That the purpose of our whole economic system is the creation of a type of human being which shall constantly tend to improve with each passing generation. Society's resources shall be used, not for any single generation, but in such a way as shall make possible human development for the centuries to come.

2. That means shall be provided for increasing the capital equipment of society, and its store of acquired knowledge and useful institutions, as well. This of course involves the provision of means to carry on from one generation to another the knowledge which will be helpful in furthering the objects of society.

3. That our economic order shall be so arranged that every individual may feel his partnership in the project and may have an opportunity to contribute as much as he can to the social welfare. He ought not to be handicapped by lack of education, of health, or of favorable surroundings. The "rewards" he receives should, in most cases at least, be in proportion to services rendered.

4. That, assuming provision in comfort for those who through misfortune are unable to provide for themselves, all persons should be encouraged and expected to contribute to the effort needed in carrying on the common objects of society and should be restrained from carrying on activities which would be harmful to the attainment of the objectives of the group as a whole.

5. That provision should be made either through schools or other instrumentalities to make certain that all individuals are kept aware of the purposes of the social undertaking and are kept aware of the obligations which this undertaking involves upon each individual.

In an earlier paragraph we saw that when a family sets up some objective, that very fact gives its members a "standard of judgment" concerning the worthwhileness of courses of action. This is also true of a society. If some such formulation of social objectives as that of the preceding paragraphs is accepted, you have a standard by which you can measure the worthwhileness of the forces and institutions round about you.

¹ Cf. A. W. Small, "A Vision of Social Efficiency," *American Journal of Sociology*, XIX (1913-1914), pp. 435-439.

Take, for example, that method of doing things which we call specialization and which is discussed in Studies IX to XII. If you will again look through the evaluation of specialization in Study XII, you will see that the judgments there expressed were really made on the basis of the ideals or goals of society which we have just been formulating. You will find the same thing to be true of all the other judgments expressed in this book. Indeed, if you will listen to the judgments your friends make on matters of the day you will find that they have, very likely without knowing it, some social goal or ideal in mind. You will be interested in trying to make out what it is.

Methods are available for attaining social objectives. — Granted, now, that we have something of a vision of the goals toward which society is striving, we will wish to help in shaping and molding our economic organization in such a way that it will contribute to attaining these goals. How shall we go about it? We shall be more clear in planning action if we understand some of the forces which explain why we act and think as we do to-day.

We think and act in customary ways. — One evening after supper a group of boys and girls were playing the old game of Run, Sheep, Run. A man who was unfamiliar with this game watched the children for some time in silence. Finally, he called one of the older boys to him and asked how the rules of the game were determined.

The only answer which he could obtain was not very clear. The boy said he didn't know — the game had always been played this way. He had heard his father say that he used to play it this way. Everybody always had played it this way. Everybody now plays it this way.

This boy's answer to the inquisitive gentleman might well be one answer to the question why we use many of the methods which we use in almost every phase of life. Many of our acts seem to have little sanction behind them excepting the fact that everybody does it that way. That is the way it is done. Such is the custom.

Notice a few simple examples. Why do gentlemen in America raise their hats when they meet a lady? There is no law requiring it. In some countries such a practice is unknown and would be regarded as unusual as we consider it customary and proper. Our schools are full of customary methods. There is no rule in most schools requiring students to face the teacher, yet no one would think of reciting as Chinese students formerly did, with their backs to the teacher's desk. The rules governing the hour of beginning and dismissing school and determining that there shall be a vacation on Saturday are chiefly the result of custom. Stores have their customary hours for business. We rise, go to bed, and eat our meals according to custom.

Our various customs are likely to have their origin in some useful practice in the past. It is said, for example, that in medieval times, before many Englishmen could even write their names, it was customary for the nobles to stamp in wax the seal of their coat of arms to represent their signature. Written agreements and contracts without such a seal were not enforceable at law. Now most people can write their names, but the law still requires that certain contracts, such as those to convey real estate from one owner to another, must have a seal opposite the name of the signer to make the agreement binding. This seal is no longer stamped in wax, but it is usually printed on the contract or the word "seal" is written in with a pen. It really is of no use excepting to fulfill the legal requirement. It is a survival of an old custom. Some of our survivals date back to the time of primitive man.

Customary ways have their advantages. — We must not suppose that it is in all respects unfortunate that we are so much influenced by customary ways. It is, of course, altogether desirable that we continually construct new and better methods with which to replace old customary ones, but if it were not for our tendency to follow old habits we should fritter away endless time and energy. Think, for example, if instead of unconsciously doing things in habitual ways, you had from the time of waking this morning planned and reasoned out

your every act! You would never have reached the breakfast table! So also in society as a whole customary ways are a great help. If it were not for the influence of customary ways, there would probably be such a variety of points of view, standards, and methods in a community that it would be almost impossible for us to live and work together.

People get along fairly well in their own country because all have many views in common. We have all been taught a customary love of country, we have been taught to believe in patriotism, we have been taught that certain things are dishonest or immoral and must not be done, we have been taught respect for the same laws and customs. In general, our views on these matters, because they are the old customary views, are much alike and therefore we are able to act in concert and to make laws and follow methods with which the large majority agree. Custom rather than law is the reason why most of us are honest, truthful, courteous, somewhat good tempered, at least semi-genial and capable of being lived with without violence. Custom is immensely valuable.

We are not slaves to custom. — But, as we saw from our study of medieval times when almost everything was “in the rigid cake of custom,” custom *alone* means stagnation. It is all very well for it to furnish us a solid basis of habitual ways, but it should furnish us *only a basis* upon which to operate and *not a cell* in which to lead a cramped existence. As a matter of fact it is for us to-day primarily a basis. Research, invention, scientific analysis, and comparative studies are our watchwords to-day. They show that our minds are active (some cynic has said that the human mind at its best barely works) and that new currents of thought and new ways of doing things are continually being developed. We may call these rational as opposed to customary methods. Some of these, in their turn, become in time habitual and customary, so that the basis upon which we operate is continually growing larger and better.

Many institutions mold our thoughts and acts. — We have numerous institutions which aid in transmitting both the

customary and the rational methods throughout a group, or from one group to another, or from one generation to another.

Important among these institutions is the family. All of us as children get our ideals and our habits of work and play by imitating the activities which go on within the family circle. Parents are continually setting children examples which the children follow by imitation. One writer says, "So rapidly does this imitative process go on that by the time the eighth year is reached it seems probable that the foundation lines of the child's social and moral character are laid."¹ By imitation each generation takes up and makes its own the customs and traditions of the preceding generations.

When we realize that at least one third of all the people in the world are children who are being taught and directed very considerably by their fathers and mothers, we can see how important is the family as an agency in passing down the material of one generation to the next. Some of the important matters and methods which we learn to carry on from the influence of our families are :

a. Communication — that is, we learn to talk, and perhaps to write and read.

b. Our ideas concerning right and wrong; our standards concerning what is a good or bad action; proper and improper conduct.

c. Many of our ideas of religion.

d. We learn to live and work with other people — that is, we learn to yield something to other people's point of view, to express our own, to accept criticism, to give criticism, and to coöperate in the programs which may represent a composite view rather than the definite notion of any one individual.

Any one who has ever been to school can see at once how strongly books and schools tend to influence us. In our books we read how things are done. Teachers explain to us the way in which various activities are carried on, we are taught how our government is operated, how business is conducted, how problems in mathematics and science are solved, and how health

¹From E. S. Bogardus, *Introduction to the Social Sciences*, p. 174.

is cared for. We are also taught through books and schools what ideals are good and what are bad. Our schools and books impress upon us standards of morals that have been fixed upon as desirable. Certain books are described to us as good literature, certain music as good music, certain pictures as good pictures; and these standards of older persons are impressed upon us as proper standards for us to respect and copy. We are told that certain attitudes toward our teachers, parents, and other persons are good attitudes. Thus, the older generation hands down to the new both its customary and its rational methods, points of view, and standards.

Churches, the press, and everyday expressions of the people about us all have important influences upon us. The church services teach us certain established standards which are accepted as the right ones. These are in large part standards of the past which are reimpressed upon each generation. Newspapers, magazines — sometimes together spoken of as the press — are constantly iterating both old and new points of view. Besides these forces there is all about us every day the conversation of other people. Opinions are expressed which assume certain standards, which assume that certain things are right and others wrong, which assume that certain points of view are the right ones from which to look at the questions of the day. All these agencies contribute to forming what we call public opinion, and public opinion greatly molds our thinking.

Even a short list of our institutions should not omit the law. Often law is little more than a formulation of custom. In our study of medieval commerce, we read of the customs of merchants who met at the old fairs in England and on the continent in Europe. These customs of merchants were finally declared to have the force of law in England, and in this form of law they still survive. The laws governing contract and agency, and the laws dealing with notes, checks, and drafts are very largely embodiments in law of old medieval customs. On the other hand, many laws are "thought out." They look toward the establishment of some new structure in the future rather

than toward a formulation in words of some custom. Our recent amendments to our Constitution establishing woman suffrage and abolishing the liquor traffic are cases in point. It is largely through laws that the "regulatory," "promotive," and "prohibitive" intervention of government mentioned on page 321 is worked out, and of course it follows that many of the methods of our economic system are determined by laws.

Powerful forces lead to changes in ideals and methods. — Clearly in all the turmoil of expression and striving, some institutions and some persons have vastly more power to influence us than others. A tremendous power is held by the press — the newspapers and magazines of the country. More, perhaps, than any other force does the press dominate us and influence us to believe what those who control the press wish us to believe. Plainly, where so much power is placed there is lodged an awful responsibility. Schools have immense opportunity, through their teaching of youthful minds, to indicate the desirability of certain objectives. Thus, in teachers and in the writers of books there is placed a tremendous power and a tremendous responsibility. Men who have attained high position either through election to office or their ability to command the attention of others through speech and writing influence us in the determining of our ideals, and they must be held responsible in accordance with their power.

Of one other thing we may be sure. Whatever may be our ideals now, they will not remain permanently the same. The forces which have been constantly at work creating our ideals and ends will be continuously at work re-creating and renewing our purposes and leading us farther and farther upon the road we call progress. So, too, with the methods which we have used to reach our goals. At present, we are turning more and more to government and law to remold our social order that it may accomplish the things which we wish. This method may be temporary or it may be relatively permanent. Whether we shall continue to give more and more control to the central

governmental authorities will depend upon our decision as to the best method of making progress towards our goals.

Governmental intervention a good illustration of changing ideals and methods. — Since we are to-day turning so much to government and law as means of reshaping our social order, it is worth our while to return to page 119 and to take up again the historical account of governmental intervention. It will be a sketch of changing ideals and methods in one phase of social control. Of course, other phases (for example, codes of ethics) lend themselves to similar sketches, but a sample must suffice.

We have already seen (Study V) that in medieval England there were certain ideals or standards, such as the doctrine of just price, which profoundly influenced the actions of government, and that the laws of the time were to a great extent statements of customary practices.

Mercantilistic ideals meant mercantilistic organization. — We have seen also (Studies VI, VII, and VIII) that gradually the medieval system gave place to other methods of gratifying wants and there arose the ideal of strong national life. In keeping with this new ideal changes were made in the economic organization. Some of them were consciously or knowingly made; others came in without people being really aware of them. We are, at this point in our study, particularly interested in the fact that under this new system (you will remember that we called it *mercantilism*) there was a large measure of regulation of industry by the central government instead of by the guild and manorial organizations as had formerly been the case. These regulations were, of course, drawn with the idea of so organizing the economic system that a strong nation would be the outcome. For example, they thought that a strong nation must have a large supply of money. Accordingly it was forbidden to send gold and silver out of the country; manufactures at home were encouraged and the purchase of manufactured goods from abroad was discouraged so that the country could take in more money for the goods which it exported than it would pay out for goods which it imported. This idea is expressed in brief

by saying that they wished to have the "balance of trade" in their favor. Again, they encouraged certain industries with the hope of having the nation self-sufficing in time of war and they had trade and navigation acts aimed at weakening other nations while strengthening their own. These illustrations show how the economic system was shaped in terms of an ideal.

***Laissez faire* meant a different organization.** — With changing conditions (see Studies VI, VII, and VIII for an account of these changes) new ideals arose. The minute regulations of mercantilism (see p. 120) became onerous; belief in the "divine right of kings" and in submitting to "authority" yielded gradually to a belief in "individualism." All this came to be expressed as a belief in a "natural order." It was thought that this natural order could not be changed by man; it was unchangeable. It was believed that when man tried to change it he merely set up friction and brought about unpleasant consequences. The thing for man to do was to find out what this natural order was, and then conform to it. In the economic realm, the natural conclusion of such thinking was "let things alone, let us have no interference or regulations, — *laissez faire, laissez passer*," and along with this went the belief that the individual, if allowed to seek his own self-interest, would be led "as by an invisible hand" to promote social welfare. He would automatically "conform to the natural order."

We might summarize the changes proposed by the advocates of *laissez faire* as follows:

1. Freedom from governmental interference with business within a country.
2. Freedom for workers to move from place to place and make such contracts as they could.
3. Freedom for business men to enter almost any business they liked and to operate it without governmental interference.

With this new ideal before Englishmen, they began to revise the economic organization. The chief form of their revision

was to do away with many of the old rigorous regulations, to put more and more power in the hands of the individual, and to allow an increasing amount of self-initiative. It is, of course, as a result of this change that we have so extensively the individual organization of production which we studied in the earlier lessons. The individual was given a freedom in business which he had not possessed earlier.

One might well ask how it could be expected that individuals would not do many things which would be harmful to others if they were given so large an amount of freedom. The answer was made (and still is, for we still have a great many of the methods adopted under this change), first, that it was permissible for the state to forbid certain things, and, second, that the individual in seeking his own interest would necessarily contribute to the welfare of society. The answer was also given, and still is, that competition would serve as a regulating force. Competition was trusted to eliminate producers of bad wares, to eliminate the charging of unduly high prices, to bring about the use of the best processes, and to bring more favorable results than could be brought about by a system of regulation and law.

Governmental intervention again comes in. — It is probably safe to assert that for 100 years after 1750 both in England and America the ideal of *laissez faire* and the natural order was the one towards which the greater number of intelligent and influential people worked. In America, indeed, the grip of *laissez faire* was even stronger and lasted longer than in England. The main reason for this is that there have been in America such abundant opportunities for the advancement of the individual that governmental protection seemed quite unnecessary. There seemed to be substantial equality of opportunity for every one, and in subduing the new territories it seemed that the individual in following his own self-interest was, in the main, promoting social welfare. Many persons, among them many thoughtful ones, still believe that much governmental interference with an individual's freedom of choice or self-direction

will bring more harm than good. Nevertheless, the ideal of *laissez faire* has ceased to be as attractive as it was one hundred years ago and the reasons are not far to seek.

To begin with, it came to be seen that there were distinctly undesirable consequences of *laissez faire*. Among the workers in the factories and mines some of these results were first observed. Children as young as six and seven years of age were not infrequently employed in factories. Women hired themselves for monotonous factory labor for twelve and fourteen hours a day and worked under unspeakable conditions in coal mines. The factories in which people worked were frequently ill-ventilated, ill-lighted, noisy, and unsanitary. The machines used were often unprotected and dangerous. Yet all this was in keeping with the theory of "let-alone." The owner of an unsanitary factory where women and children were frightfully overworked might very honestly have answered accusations by saying that he was doing nothing unfair as his employees took this work of their own free will. Children, who most of us now think should be in school, might have answered very honestly that they had a right to do as they pleased and to spend their childhood in factory work if they wished. Observers who were interested in social well-being, however, did not regard these conditions with calmness. They began to express the belief that women and children must be protected even against their own wishes if the race was not to deteriorate. As a result of agitation by such observers, laws were passed in England as early as 1802 imposing restrictions on the conditions under which employees were allowed to work. This may be regarded as a typical illustration of the gradually recognized need of regulation.

In the second place, there came about a different attitude toward government and its workings. In the days when "the government" was an arbitrary king, suspicion concerning its attitude was natural. With the growth of democratic ideals, however, and the development of government that was more an expression of the will of the people, such suspicions tended

to disappear. In other words, there came about more of a *willingness* to use this agency as a means of promoting social welfare.

In the third place, we have attained more knowledge of social causes and effects, meager as the knowledge still is. Certainly we have more of a sense of collective responsibility; we see more clearly that ours is a coöperative society and that all society has a very real interest in the development of the individual. We think we see something of social goals and how to approach them, if only with halting steps. We are accordingly more willing than formerly to use the various methods of approach; among others, governmental control.

Finally, and possibly most important of all, most of us no longer believe in "an unchanging natural order." We believe it can be changed, and that by our actions. The most important single cause for this belief is found in the work of Charles Darwin. He and his followers have shown us that there is change, or evolution, in the physical world and that man can affect it, — witness the work of Burbank. An "evolutionary philosophy," as opposed to a natural order philosophy, has sprung up which has been carried over into the social sciences and seems there to be applicable. Since we now believe the economic order *can* be changed, since we think we see desirable goals, and since we think we know something of methods of attaining these goals, we make use of them. Among others, we make use of governmental control.

Throughout our study, we have seen so many instances of prohibitive, promotive, and regulatory activities of government in recent times that no extended discussion or illustration is here necessary. It ought to be pointed out, indeed, that some observers contend that we are overdoing the matter; that we are grinding out "half-baked laws" so rapidly that no one can learn what they are or what they mean before the legislatures have ground out a new "batch." In the case of one state 1520 laws were passed in one session. It is hard to believe that they were all well planned.

Knowledge and understanding prerequisites to good citizenship. — Perhaps in the last sentence there is an implication that we shall do well to notice. Change is not necessarily progress. It is entirely possible to use our various instrumentalities of social control unwisely. They may be used to bring disorder and even disaster. If it is highly important to-day that we make changes for the better (every thoughtful student of our social order sees in it many serious defects), it is equally important that we refrain from making changes for the worse. We must strive to hold the great gains and achievements which we have made. In our country, power to make changes rests, at the last, with its citizens. The changes which they bring about should be made with adequate knowledge of our present economic organization, its points of strength, its weaknesses, its essential features, its historical development, and its present tendencies toward change. If the study we have made has contributed to this end in your own case, its mission has been performed.

PROBLEMS

1. Can you cite any goals which your family has set? Can you mention any methods which its members use in order to arrive at the goals? Do you see that having a goal enables the members to have a "standard of judgment" concerning the wisdom of certain actions?
2. Can you name any goals of the community in which you live? If so, what agencies are available for the community to use in attaining its objectives?
3. Draw up a list of reasons why it is harder to state the peace-time objectives of a nation than it is to state its objectives in time of war.
4. Look again at the judgments concerning trusts on pages 309-11. Try to relate these to the social ideals expressed on page 473.
5. Review the arguments for taking better care of our human resources. (Study XXIV.) Do they fit in with the social ideals expressed on page 473?
6. Do you think slavery a good thing? Poverty? International trade? The spread of scientific knowledge? Are your answers in terms of the social ideals on page 473?

7. Make a list of customary or traditional ways which seem to you good ways.

8. What is meant by saying that we are fundamentally creatures of the past with a veneer of the present upon us?

9. We sometimes hear it said of a new law that it will be difficult to enforce because it breaks too sharply with tradition. Explain.

10. Write out a paragraph comparing the importance of custom in the medieval period with its importance to-day.

11. "Laws are congealed custom." What does this mean? Give five cases of laws which cannot be said to be congealed custom.

12. Is conscience a factor in social control? Is respect for the opinion of others? Tell why you answer as you do.

13. Does the church play a part in controlling social conduct to-day? Does it play as large a part as it did in medieval society? Does education? Does public opinion?

14. Is a business establishment an agency of social control? Is it a place in which traditional ways of doing things are passed on? In which new ways are devised and passed on? In which standards of honesty are developed?

15. There are such things as professional standards. For example, physicians ordinarily frown upon advertising their services in newspapers. Find other illustrations. What gives such standards any binding power? Are they imposed for the good of society or for the good of the profession?

16. Is the union label an agency of social control? Is the trade union? The Republican party? The Socialist party? Congress? Tell why you answer as you do in each case.

17. Although some of the points are not covered in your reading tell how each of the following plays a part in social control. An illustration of the working of each will give you a start. (a) Imitation; (b) fashion; (c) education; (d) the law; (e) religion.

18. Draw up a list of the factors which contribute to the formation of public opinion. Should you say that it is formed by the few or by the many?

19. Draw up in parallel columns the factors making for and against the formation of public opinion that is *honest and disinterested*.

20. It has been said that control of industrial affairs in the medieval period may be characterized by the propositions that (a) control was customary, (b) control was local. Do these statements properly characterize control of modern industry?

21. Name five persons who have helped greatly in bringing our American social ideals to their present position. Can you tell what each contributed?

22. We sometimes hear it said that a man was too far ahead of his times to be properly appreciated. Explain.

23. Look again at the reasons why there has been in recent years an increasing intervention of government in the control of business and other social activities. Do you think there will continue to be much governmental intervention?

24. Show just why a person who believed in evolution could not believe in the "natural order."

25. "The passing of the frontier with the accompanying narrowing of opportunity helped to cause Americans to reject *laissez faire* as a satisfactory ideal." Explain.

26. Suppose some one says, "I do not think we should have such a thing as social control." Could we escape from social control or shall we have it whether we wish to or not; whether we are aware of it or not?

27. Draw up an outline of the main points in this lesson.

REFERENCES FOR FURTHER STUDY

Marshall, *Readings in Industrial Society*: p. 989 and Selections 378-414.

Teachers who wish to expand this section may readily do so by using one or more of the following:

(a) On Programs of Reform, such as Socialism, Communism, Single Tax, etc., chapters in almost any standard college text in Economics.

(b) On Competition, *Readings in Industrial Society*: pp. 885-946.

(c) On Private Property, *Readings in Industrial Society*: pp. 947-988.

(d) On Responsible Agents in the Guidance of Economic Activity, *Readings in Industrial Society*: pp. 824-884.

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