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LABOR AND INDUSTRY

By

Dom Virgil Michel, O.S.B., Ph.D.

St. John's Abbey, Collegeville, Minn.

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THE SOCIAL QUESTION

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1. LABOR AS A TITLE TO OWNERSHIP

THERE is no doubt that many writers in modern times have said very little about labor as a title to ownership. This is also true of writers on ethics that have followed the general tradition of thought of the past centuries. Other titles, such as occupation, prescription, heredity, and the like, received much more consideration than that of human labor. If the latter was treated at all, it was usually granted a minor or secondary rôle as a title to ownership.

Is labor really only a secondary title to ownership of properties? Karl Marx took the bull by the horns when he turned things quite around. He opposed traditional thought by claiming that labor is the sole title of just ownership. By labor, Marx meant only the labor of the wage earner of modern industry. He said that all the economic or the exchange value of industrial products is due to such labor. But according to the "iron law of wages" the laborers get only a minimum wage at all times and consequently only a part of the economic value that their labor has produced. The value that is over and above what is covered by this minimum wage Marx called "surplus value." Now, this "surplus value" in modern industry, he says, goes into the pockets of the capitalists whereas

it belongs rightfully only to the laborers. Therein lies, for him, one of the gross injustices of our present capitalistic system.

In his famous "Labor Encyclical" Pope Leo XIII said that the results of labor shall belong to the laborer as the effect follows its cause. The words might almost be said to have a Marxian ring in them. The Pope of the laboring man and the prophet of Communism—do they say and mean the same thing?

We shall here use the term *labor* in a wider sense than that used by Marx. Any discussion of principles will end in failure if the field of discussion is narrowed too much beforehand. By labor we shall for the present mean *any expenditure of human energy* that produces anything of increased value to men. Labor in this sense will include not only the use of muscular strength but also the use of directive thought.

Since we are dealing with rational men, we cannot separate the two types of human energy. True human labor, no matter how much muscular energy it requires, is also thought-directed. If the guiding thought is absent, the expenditure of energy becomes haphazard, and does not tend, except by accident, towards the production of values. We are not now concerned with the question of whether the human factors of brain and brawn are separable. Our point of emphasis is that productive human labor always contains both factors, brain and brawn together, and

that it is false to restrict the term to one of them alone.

The problem arising out of human labor is in many ways a modern one. Yet it confronted the mind of man for ages, and Christian thought long ago worked out a principle that is fundamental to it and that has been accepted in theory all down the centuries of Christian civilization. The principle has at all times found expression and application in regard to the title of ownership that was referred to in the end of our last article, that of industrial accession.

It cannot but be interesting to note that the principle seems to be one of common acceptance in law. It is stated very clearly in *Webster's New International*, which should be, if anything, a mirror of accepted ways of thought. One can only wonder how this common acceptance of a principle can be so glaringly ignored in modern industrial life.

Webster's gives the legal meaning of "accession" as follows: "That mode of acquiring property by which the owner of a corporeal substance becomes the owner of an addition by growth, increase, or labor. In general, additions or improvements made by one person or by the forces of nature to the property of another belong to the owner of the property. It occurs in case of gradual increase. . . . Where, however, the thing worked upon is changed to something of a different species, as grapes to wine, grain to beer, etc., the worker becomes the owner,

provided he was not a willful trespasser or did not know the materials belonged to another. The laborer also becomes the owner in some cases where the value of the property is so increased that a different rule would be unjust, as where pig iron is made into watch springs, or a picture is painted on another's canvas, the laborer being liable for the value of the other's materials."

Here we have a clear statement of the traditional Christian view. Both labor and raw material are factors in the finished product of increased value. Apart from conditions of fraud, and the like, Christian philosophers agree that the product must be divided among the factors as follows:

1) If the value of the product is due mainly to the labor, then the product belongs to the laborer but he must pay the owner for the material.

2) If the value of the product is due mainly to the original material the product belongs to the owner of the latter but he must pay the laborer for his work.

Modern industrial production is immensely complex. Does the above fundamental principle of labor still apply or must Christian tradition change its view? Because of the complexity of the problem today, we can hope to come to some kind of answer only gradually. We shall try to proceed step by step.

2. LABOR AND THE RIGHT TO OWN

THE duty to work is based in part on the need to work for a livelihood. At all events, where men have not the bare necessities of life, it is an absolute duty of theirs to set to work in order to acquire what they need for the support of their lives and those of their dependents. The natural instruments by which man can attain for himself the necessities of life are his own personal energies, his mental and physical powers.

Human labor is man's ordinary means of support; it supports life through the results it achieves. Only through these results, the products of labor, can it function at all as a means of support. Hence the results of such labor naturally belong to the individual that performs the work.

The conclusion is strengthened by a further examination of the nature of human personality. Man's energies and abilities need exercise, not only for the support of his life, but also for the proper development of his life and his personality—to prevent stagnation of body and mind. Human activity, or the exercise of human energies, is growth, perfection of the human person. It is the personality that is naturally expressing itself in the work, or putting itself into the work, and human work is a fuller realiza-

tion of human personality. When the energies of man achieve economic values, then something of the man has been used up in the production of the result, something of the man has gone into the economic product—not only physical energy but also a subtle mental quality.

Whenever human energy produces something, that thing is by nature intimately connected with the person who expended the energy. It is in part an extension of his personality. The product of the work therefore naturally belongs to the person or persons who expended their energies upon it. It is an outgrowth of the living persons. This follows from the very nature of human labor as an exercise of living personal energies. In principle this is universally acknowledged. And it furnished the basis for the traditional views on industrial accession expressed in the preceding article.

Labor thus appears to be not merely one title among others to ownership, but the fundamental natural title thereto. It is the one title that links up material goods in a personal way with an owner. It can properly be called an intrinsic title to ownership over against all the others, which are by comparison extrinsic. All the other titles, in fact, seem to get their true value from the primary title of labor. The one exception might be that of inheritance, which, however, rests on the very natural bond existing between father and son and on the duty of parents to care for their children. Even here the ownership

that is transferred to the heirs was originally acquired by someone in connection with the expenditure of human energies.

Occupation, even, needs some exercise of human energy, or at least the full intent to exercise energy on the thing occupied, before it becomes a convincing title to ownership. Mere occupation without labor, or without intent of labor, cannot be defended as a valid title to ownership on any considerations of nature. Occupation is made certain in fact by actual labor expended on whatever is occupied; only such labor, it would seem, puts the final seal of validity on it.

To what extent can labor be considered a valid title to ownership? Only to the extent of providing the necessaries of life? From above considerations it must be evident that labor's title to ownership is not limited in that way.

First of all, man needs more than the bare necessaries of life, and every man has a full right also to enough goods to fulfil the secondary needs of a decent and comfortable living for himself and his dependents. Hence he has also the full right to acquire these by his labor.

Moreover, the duty to work is not limited to providing the necessaries of life. Man has the moral duty to unfold his activities and to develop himself. Hence he has the corresponding right to do so, and the right to all he really produces thereby. The only limit set to this right is the one that is set to all rights—the moral law. All exercise of rights must remain within

the aims and bounds of general moral law under pain of ceasing to be legitimate.

Labor's title to ownership, as developed in these paragraphs, has taken no account of the great complexity of the industrial situation in our own day. The complexity arises chiefly out of the fact that the different factors entering into industrial production are varied and numerous, and that the factor of human labor itself is multiple and complex. The product of the modern factory is the product of a complicated system of factors, both human and physical, all of which contribute their share to the combined enterprise, and all of which play their part in the creation of the economic values of the product.

In actual practice, the factor of human labor, both brain and brawn, has been pushed into the background by the customary viewpoint that both wages and salaries are agreed upon in free contracts between employers and employees. Today the ordinary laborer works on materials not owned by himself and with tools that are not his own—a condition that repeats itself endlessly in any large industry because of the different specialized actions that combine to manufacture a single product. Can a discussion of fundamentals shed any light on the confusion of ideas resulting from the complexity of the modern industrial enterprise?

3. ECONOMIC VALUE AND HUMAN LABOR

IN a former series on the Social Question, we discussed at length the fundamental principle underlying all right conception of ownership, *viz.*, that the goods of earth have the purpose of serving the needs and interests of man. Just insofar as any goods can serve human needs and interests they have value for man. The term *value* here means nothing but serviceability of any kind.

The term *economic value* when applied to goods is restricted to a special type of serviceable goods. It refers to such goods-value as can be had only through economic activity of some kind, to value that can be had only through exchange of some kind, through exchange for other goods, for money, or for work. When goods can be had for the asking or the taking, they have no economic value, no matter how serviceable they are for man. Thus the air, despite its great necessity for man, can be had freely and so has no economic value. Nor has water when it is abundant and accessible. In some countries water is so scarce that it is sold in small quantities on streets and railway stations; it then has economic value. Should the air ever become equally scarce, there is no doubt that it would become economically very valuable. Hence a

prime characteristic of the economic value of goods is their relative scarcity or inaccessibility.

The element of scarcity having been mentioned, we shall not concern ourselves further with it. Nor are we concerned with the market price of objects, the conventional measure of economic value in terms of money. The practical question of a just price is a further question that can arise only when goods already possess an economic value as defined above.

The economic value of goods, then, derives from two main factors. One is the serviceability of the goods themselves. This depends on the nature of the objects in question, and can be called the objective factor or aspect of their economic value. The other factor is a subjective one; that is, it is rooted in human minds, in the actual desire men have for the goods in question. This is something over and above the objective serviceability as such. For it may well happen that some goods may be very serviceable for human needs or interests but that men simply do not want that kind of goods under any circumstances. Despite their serviceability, such goods would have no economic value. Again goods may have been desired by men out of mere curiosity or idle vanity, although they can serve no real need or interest of man. Such goods may attain even a very high economic value. The last two instances indicate what an important part fad or fashion may play in determining the economic value of goods. They also indicate

what a prominent part modern advertising has sometimes played in artificially creating human desire and demand for certain kinds of goods.

When the subjective factor is purely the result of a passing fad, it cannot contribute to social stability, or to continued economic activity, such as is necessary for the common well-being of mankind. The latter depends on a more permanent and reliable scale of economic values, which must be based in more permanent human needs and interests. Such values will obtain only when goods possess qualities that are fitted naturally to serve these more permanent needs and interests. In other words, permanent economic values ultimately depend on objective qualities found in goods themselves. While the subjective element of economic value cannot be ignored or considered irrelevant, it is in the proper order of things that the subjective factor be dependent on and based in the objective qualities of goods. The objective factor of economic value is the basic one in the economic life of man; we may call this the objective economic value of goods.

This objective value of goods is therefore the actual aptness or fitness of an object to satisfy human needs. It rests in the fact that an object is adapted to serve man just because the object is what it is—because it is in itself fit for fulfilling certain purposes in human life. Whence do objects attain this fitness and the consequent economic value?

The objective economic value of things comes from two sources: nature and human labor. It is only in rare instances that nature is the exclusive source of economic value; *e.g.*, fruits or other edible plants that grow wild, medicinal herbs, and the like. Even these must be plucked by man and partaken of at the right time. If such action of man can be called labor, then it can be truly said that the two factors of nature and labor always combine to produce goods of economic value.

However the proportionate contribution of the two factors is anything but definitely determined or identical for all cases. On the contrary, the proportionate contribution of each of the two factors varies for almost every kind of article. Coal, for instance, is immediately serviceable to man the moment it is extracted from the ground and brought to the surface of the earth. Granite on the other hand must be subjected to considerable human labor before the rough block is turned into a foundation stone or a pillar or a monument. In fact the rough block of granite has value only insofar as it is a possible object for the expenditure of much labor towards its transformation into an object of definite form and purpose. In modern industrial manufacture there is considerable labor (human and mechanical) expended before the final product of economic value is attained.

4. PRODUCTIVE FACTORS OF ECONOMIC VALUE

LABOR may be called economically productive whenever it transforms goods from a less useful state or condition to one that is more useful. Productive labor then would include not only farming and mining, but also the transportation of goods from a place of greater abundance to a place of lesser abundance, where because of their scarcity the goods would have more exchange value than in the place in which they abound. Naturally they can also fulfill their purpose of serving the needs of men better in the new place.

The activities of mining and of farming are still relatively simple in comparison with the prime productive activity of man today, that of industrial manufacture. The activity of transportation of goods, too, is simple in comparison with manufacturing, although it has received its increased importance today from the manner in which manufacturing industries are concentrated in select centers from which they serve an unlimited market area. It is modern industry, in fact, which dominates the entire economic or social situation of our day, even as it has dominated our civilization ever since the beginning of the so-called industrial revolution.

Industrial activity was much more simple before that time. Any process of manufacture in

olden days entailed the three factors that are still indispensable today: Brain, brawn, and capital. But these three factors were then ordinarily combined in one and the same man, or in a very small group of men whose relations to each other were of the nature of members of the same family or household. The cabinet maker of those times used his own capital in buying tools and raw materials. He did his own planning from beginning to end, and realized his plans through his own skill and energy. At most he delegated some of the rougher work to apprentices while continuing to direct their efforts in person.

With the development of the industrial revolution the home process of manufacture (making by hand) was gradually transformed to the gigantic process of machine production. The homelike atmosphere of the workshop gave place to the rigid organization of the modern industrial plant. The workshop itself yielded to the huge factory in which individual men are mechanical non-entities. The skilled artisan of old, who was a sort of jack-of-all trades within the limits of his profession, disappeared under pressure of the technical division of labor. By reason of the latter each individual laborer now performs but an infinitesimal part of the entire manufacturing process.

The modern industrial plant is a most complex organization. While it is still true that the different productive factors can be subsumed un-

der the three headings of brain, brawn, and capital, such a simple statement does not do adequate justice to the real state of affairs.

The guiding brain of a modern business or industrial venture is known as the entrepreneur. He may be a single individual or a group of men. The entrepreneur's function has been that of managing an enterprise and assuming all the risks of the venture. He organizes the entire establishment, coordinates all the factors that go to make up the entire organization, employs all the labor that is needed, whether it be that of wage earners or of salaried employees, and determines the uses to be made of the capital that is invested. As *Webster's New International* says, the entrepreneur's "function in itself includes no working, and no owning of capital: it consists entirely in the establishing and maintaining of efficient relations between the agents of production."

The agents of production themselves we may divide, for the sake of proper distinction, into the human and the physical. The human agents include all the workers who contribute any part to the total activity of the enterprise, no matter how specialized or minute the contribution of any one man may be in itself. The human agents include all the manual labor, both skilled and unskilled, and the different degrees of mental labor, foremen, department managers, office workers, etc.

The physical factors or agents include the land, the industrial plant itself, buildings with all their equipment, machinery, etc., and whatever capital is needed over and above these to set the whole enterprise agoing.

For the sake of simplicity, all the physical factors together may be summed up under the term capital, which can then be defined as "the total amount of property owned by an individual or corporation at a specified time, as distinct from the income received during a given period" (*Webster's*). The total capital of a plant may itself be viewed in terms of money invested, *i.e.*, of the amount of money spent in purchasing the land, erecting the buildings, furnishing all the equipment, and for initial and continued operating expenses.

Capital logically divides into two distinct kinds: (1) Capital which is invested in the enterprise by the owners who receive certificates of ownership called stocks. The amount of stock any individual holds in an enterprise measures his share of ownership. (2) Capital which has been borrowed from others. Those who loan their money to the enterprise receive in turn interest-bearing certificates, indicating the amount the enterprise owes them, rate of interest and time when principal plus interest is due for repayment to them.

5. RELATIONS BETWEEN PRODUCTIVE FACTORS

IN the preceding article there was some discussion of the different factors of production; the entrepreneur, labor, and capital. It was there also stated that the development from earlier manufacture to industrial production was marked by a division of labor and a separation of the various factors of production.

Before proceeding with a further development of this phenomenon, it may be well to call attention to the fact that even today several productive factors may combine in one individual, whether he be entrepreneur or laborer. Today there are many workers in industry who own some shares of stock in the company for which they are working. They are then at one and the same time laborers and capitalists. Yet, even in their case the two functions of labor and capital are rigidly kept apart as separate factors, insofar as the laborers still get their stipulated wage for their work and quite independently of that also their percentage of return as owners of stock.

In spite of the fact that employee ownership of stock increased considerably in the twentieth century, it remains true that the chief characteristic of modern industry has been an increased

division or separation of the various productive factors into more specialized contributory functions of the whole enterprise.

In the earlier period of our industrial development the entrepreneur still combined in himself the functions of promoter of the industrial venture and manager of the enterprise; that is, the functions of relating the industry to the general market and of co-ordinating the various factors of the industry towards a maximum efficiency of production. At the same time, the entrepreneur was the chief if not exclusive owner of the plant, so that he was also the main capitalist. His ownership was thus a very active one.

During this stage of industrial development, however, other separations had already taken place to an almost complete extent. In former days the handicraftsman owned his own workshop and his tools. With the advent of the factory the workman was completely separated from any control over his tools as well as his workshop. Both plant and machinery became the exclusive property of the owners. In relation to his labor the workman owned nothing but his personal energies and ability.

With this separation of labor from ownership also came the separation of the laborer from all voice in the management of the industry. Formerly he was not only boss of his tools but also his own manager. Now he became little more than a mechanical extension of a highly organized machinery of production.

For some time this division of functions showed itself chiefly in regard to the industrial laborer. But in recent decades it has also overtaken the entrepreneur and has made quite rigidly separate factors out of his former unified function of owner, promoter, and manager.

Today the promoter of any industrial scheme may organize an enterprise without putting any large amount of his own money into it. One of his functions as organizer is the gathering of the requisite capital by the sale of stocks and bonds. Again, the promoter may never lift a hand in the internal management of the industry. The management will be in the hands of other persons whom he hires for that purpose at a stipulated salary.

Both promoter and manager may then continue to direct the enterprise without owning any appreciable shares themselves, while the owners of the shares may live miles away from the industry and never go near it. Naturally such owners are in no way actively engaged in the industrial enterprise. Their ownership is purely passive; and they are often considered silent partners of the corporation. Legally such passive ownership includes some directive or managerial rights; but whenever the ownership is widely scattered over a large number of persons, it becomes quite impracticable for the owners to exercise their control in any telling manner.

Thus the separation or division of the industrial factors seems to have reached its limit, beyond which further development in the same direction is hardly possible. This development went hand in hand with an ever-increasing growth both in size and in complexity until we have the gigantic business corporation of our own day.

One of the consequences of this development of industry is the increasing difficulty of centering the responsibility for the entire project in any one place. This was relatively easy when the entrepreneur combined in himself the functions of owner, promoter and manager. It was still more easy in the earlier day when the worker owned his own tools and shop.

Another consequence of the development has been the transfer of the financial risk to one of the segregated factors of the entire enterprise. In the earlier days of industry it was manifestly the entrepreneur who took the financial risk for the enterprise; it was because of this risk that he was considered to have a clear title to all profits. Today the risk is considered to rest altogether with the owners of stock, who for that reason are given a sole right to all profit even though they in no way contribute actively to the productive process. This brings us to the question of distribution of industrial profits.

6. DISTRIBUTION OF INDUSTRIAL PROFITS

MUCH has been said in recent years of the maldistribution of wealth in our country. There are many persons today who attribute this general maldistribution of wealth directly to the maldistribution of industrial profits. Whether this latter claim is true or not will not concern us here. We shall not discuss the relation of industrial distribution to the economic depression at present. It is the distribution of industrial profits as such that we are investigating.

The term *profits*, as used here, will mean the gross profits, the total income prior to the paying off of running expenses. Whenever the term is to be used in the narrower sense we shall use the qualified term *net profits*.

Distribution of profits in modern business enterprises is about as follows:

1) To the laborer goes the wage agreed upon in advance.

2) To the promoter and manager go the salaries agreed upon in advance.

3) To the holders of bonds goes a fixed sum as interest.

4) To the owners of the stock a fixed interest and dividends or dividends only, *i.e.*, shares of the net profit.

5) To the land goes rent.

6) Another part of the income must be used for general upkeep, replacements of worn out or out-of-date equipment, taxes, raw materials, etc.

Insofar as land, plant and equipment, and raw materials are originally procured from the capital invested these factors might be included under that category. Hence the program of distribution can be simplified by reducing it to the three heads of workers, managers, and providers of capital.

After all expenses for replacement, tax and the like are paid, how is the remaining income actually distributed among these different human elements?

There are then wages for the common workers, salaries for the managers, interest for the holders of the bonds, and net profits for the owners of the stocks. The distribution of some of the net profits in terms of bonuses, we are here ignoring, because this is not an accepted part of the general mechanism of distribution. According to the latter, then, all the human agents of production as such receive a fixed return for their labor, and the net profits go to one group of the providers of the capital, the owners of the stock, who are said to take all the risk of the enterprise, but who do not raise a finger in the actual productive activity.

This general system of the distribution of profits has been violently attacked today. There are two extreme positions taken by attackers. One denies that the capitalist has a right to a

share of the profits and the other denies to the laborer a share in the net profits.

Those who deny all right of return to the capitalist argue that the human labor is the sole source of economic values. They must practically deny that the materials, equipment, land, etc., that are furnished by the capital play any rôle in the production of goods. This is the stand taken by the Marxists who consequently parade as champions of the downtrodden workingman who is said to be so unjustly deprived of the surplus-value of his labor.

Those who deny to the laborers, that is, to all the active human agents of production, all right to a share in the net profits, do so in the name of the just rights of the capitalist. In the eyes of the latter, all human labor, whether that of the ordinary worker or of the manager, is merely a commodity that is to be bought or sold like any other wares. Hence salaries and wages are on the same level as cost of raw materials or new equipment. All of these are to be bargained for in the open market on the principle of getting the best in quality that is obtainable at the lowest price.

In this view there is naturally no place for any distribution of net profits to the human agents any more than to those who sell the raw materials to the company. Here again the general argument is made that it is the owners alone who take all the risk; hence it is they who are entitled to all the net profits.

On what principle should the distribution of profits take place? Should it be on the basis of the law of needs or of the law of interests? The present method of distribution is certainly based on the law of interests and not of needs. The word *interest* is here to be taken in the sense in which it is used when one says: "So-and-so has an interest in that concern." That is, "So-and-so has money invested in the concern, he owns some stock in it." It is according to this law that profits are distributed today.

According to the law of needs, distribution of profits would take place, first of all, on the basis of the primary needs of the human agents concerned, and only after all such needs were answered, would there be question of the further distribution on some other basis. It is evident at a glance that this principle has been totally ignored, if we remember what was said in former articles of the primary and secondary needs of men—and that, in spite of all the discussions of our time on the living family wage.

Objectively, it seems undeniable that all factors should receive their share of return in accordance with their contribution to the entire enterprise. This is but a wider application of the principle that the results of labor should belong to the laborers as the effect belongs to the cause. It is this aspect of our question that we shall next examine.

7. THEORY OF CAUSES AND EFFECTS

INDUSTRIAL production is an outstanding example of causal activity. This is so much so that one can well say the underlying natural philosophy of productive activity is the philosophy of causes and of the relative contributions of the different causes to the combined effect they produce. If the present article is concerned with fundamental notions of causality, it must be understood that we are taking the term *cause* in the traditional philosophical as well as everyday sense of "that which occasions or effects a result."

Production of economic values is impossible without the raw materials on which to work. This is true wherever anyone manufactures a material product. The final state of the product moreover depends very much on the kind of raw material with which one starts as well as on the quality of material used. Thus for furniture one needs wood or some modern substitute for wood to start out with, and wood or its substitute having those qualities that make it apt material for being turned into furniture. In terms of causality, the material from which articles of economic value are made is called the *material cause* of the final product.

The human agents of production must exercise thought in the very selection of proper ma-

terials. This same exercise of thought must accompany every step of the productive process. Nay, it must precede production as well as guide it. To be of economic value the products of industry must serve a definite purpose in life; they must be such as men want and are willing to pay for. Thus the whole industrial activity from beginning to end must be guided by thought: brawn directed by brain. This condition is a characteristic of all human activity. The guiding thought exercises a most important influence on the result of the productive activity. It is known as the *final cause*, i.e., causal action as leading consciously to a definite end or goal.

In their transition from their original state to the final product, the raw materials have undergone some kind of change in their being. In the language of the traditional philosopher a form has been added to the matter. Sometimes this form is little more than what we now mean by shape, as when a rough block of marble is turned into a pillar; but usually this added form is more than merely a change of shape, as in the making of caps, shoes, and the like, out of the original cotton or animal skins. This change of being that is made to occur in the raw materials is called the *formal cause*.

The change that occurs in the raw materials is the result of what is done to the latter. It is the result of human action working with or without tools. In our day the work is practically always done with tools, usually with a complex

type of machine. The agent who causes the materials to be transformed into finished products is called the *efficient cause*. It is the efficient cause that draws the form out of the matter.

Ordinarily the efficient cause produces its results by means of tools or machines, commonly called instruments. Without proper instruments man can do very little. His great productive ability is due to the complex instruments of production he manipulates. Hence these are known as *instrumental causes*. In ordinary human life it has always been true that the instrumental cause (*e.g.*, hammer, saw) operates only insofar as actually employed by the efficient cause. Hence instrumental causes in their basic nature have been little more than extensions of the efficient cause.

How are these causes related to one another? We have just mentioned that the instrumental cause is an extension of the efficient cause. For the present we shall let that over-simple statement be. In regard to the four major causes, material, formal, efficient and final, it is evident at once that the first two enter into the inner make-up of the product. For that reason they are called *intrinsic causes*.

By contrast the other two causes are *extrinsic*, insofar as they are causal influences that are outside the product as such; they are transitive actions that reach the material product from without, that is, from the human agents in which they have their origin.

The relation of the efficient and the final causes should be obvious. Without the guidance of mind the efficient cause would act at random and to no purpose. It receives its value as a productive cause by reason of its being under the guidance of mind. In the scale of values it is therefore the final cause that gives true value to the efficient cause.

We now have the following general relation between the causes. The material cause is as such independent of the human agents of production, *i.e.*, of the particular productive activity in question. The formal cause is the result of the action of the efficient cause, while the latter gets its value from the fact that it is under the domination of the final cause.

Lowest in the scale of causality is the material cause; it is passive rather than active, although it contributes *materially* to the final product. The formal cause is entirely the result of the extrinsic causes. And among these the final cause is the higher because the efficient cause receives its value for man from its being guided by the final cause.

Does the philosophy of causes shed any light on the proper relation of the contributing factors of industrial production?

8. CAUSES AND INDUSTRIAL FACTORS

IN any type of industrial production the four causes discussed in the preceding article naturally all play a rôle. In any evaluation of this rôle the formal cause may be left out of consideration, since it is itself the product of the activity of the efficient cause on the material. There are then left the material, efficient and final causes, which approximate the three chief industrial factors that we mentioned above, capital, brawn and brain, or, in our present set-up, ownership, labor, management.

As a factor separated from brain and brawn, it is evident that the capital does not itself perform any direct causal action at all. The capital is necessary for the plant or factory, it buys the raw materials, the requisite equipment, and furnishes at least the initial running expenses. But in these operations it is not the capitalist who is doing anything beyond consenting to the use of his capital for this purpose. The actual work is done by the entrepreneur and the laborers. The capital is thus an indirect causal factor. It exercises its causal function only through the activity of the human agents who are directly at work. It is the human agents at work and only these really exercise any active causality.

This is true not only of the setting up of a factory but also of its continued operation. Here

again capital functions only through the operation of the human agents that are directly engaged in various ways in the total productive action. This is but a further reflection of the general nature of capital, which is itself never an independent factor in this world of ours, but always a derived one. Ultimately all capital reduces in its origin to nature and human labor. To a great extent it is always the product of human labor, and it can itself be called productive only indirectly. It is never productive by itself but only through being applied to enterprises by human energy.

What, then, is the true rôle of capital in industrial production? When the capital is merely borrowed by the company nothing of the plant or the materials belongs to the lenders of the capital. In that case the sums borrowed function rather as a necessary condition than as a cause. The lenders of such capital are entitled only to a final return of the sum loaned plus a moderate rate of interest. This is what actually happens in regard to investment bonds. Is the rôle of owned capital more strictly causal?

The causal function of owned capital would seem to be twofold. It functions first of all as material cause insofar as it confers on the capitalist ownership of the raw materials. Now in the hierarchy of causes the material cause is the lowest. Outside of exceptional cases, this causal rôle is quite inferior to the others in its contribution to the economic value of the product.

Capital ownership from this standpoint exercises only a passive causality.

Owned capital also functions as instrumental cause, since it confers ownership of the instruments of production. But again, the instrumental cause is idle except insofar as it is set into action by the efficient cause. The causal activity of the mechanical instruments of production is always a derived activity, or an extended one. This is especially true in the simple case of hand tools. It is also true in part even in the case of the most complicated and most efficient labor-saving machinery. Machinery must always in last analysis be set a-going and tended and cared for by human agents. When something goes wrong a machine cannot readjust or rebuild itself.

The only direct causal factors of production are the human agents. They and they alone play the rôle of efficient and final cause in the industrial production of economic values. They alone, therefore, contribute directly to the creation of these values. And all the other causal factors are derivative or indirect; they contribute causally only through their subordinate relation to the efficient and final causes.

We are now ready to view the contributions of the factors as to their share in the distribution of the resultant value. We are here viewing the problem exclusively from the standpoint of the causal relation of the various factors.

As material cause capital should get a moderate and set return for the value of the raw materials and the use of the instruments. The efficient and final causes, the human agents, should get their stipulated wage and salary as the case may be. If there are profits over and above, then from the standpoint of causal contribution, these profits should certainly go to the human agents who alone are the direct causes of the economic value of the product, and to no other causal factors. Only thus do we realize the principle that the product belongs to the laborer as the effect does to the cause, or, the returns go to the productive factors in proportion to their causal contribution to the whole product.

In the present system the profits all go to the passive owners, who may also get a salary as active managers or workers. And the reason assigned for this is that the capitalists take all the financial risk. This naturally leads to further questions. Should not the workers also assume financial risk? Yet how can they do so in our present industrial system? Yet, again, is our present financial system itself what it should be, so that we can use it as a point of departure?

We can only proceed gradually in our discussion, and it will be some time before we can grapple with this all-important aspect of the social question.

9. BRAIN AND BRAWN IN INDUSTRY

IN the previous article on the causal status of the factors of industrial production, no attempt was made to separate the factors corresponding to the efficient and final causes, the factors of brain and brawn. The two factors are distinct in abstract thought, but are they also in concrete cases? That is, in any actual case of industrial organization can we divide the human agents into those who do all brain work and use no muscular energy, on the one hand, and those, on the other, who use only muscular energy and do no thinking at all?

When the question is put so baldly, it is evident that we cannot. In the pre-industrial workshop the two factors were intimately combined. Since the industrial revolution the trend has been towards the ever greater separation of all factors concerned, towards the ever greater division of labor. Today it is true that if we range all the human agents of an industrial plant in a graded series, we may have on one end those who do only brain work, and on the other end those whose work is quite purely mechanical and physical. But these two extremes by no means include all the human agents. Most of the manual workers must also use their minds in some degree at least.

We therefore find pure brawn, as it were, only at the lowest end of the scale. Here are the workers who in endless repetition perform some single operation in connection with a machine which was set in definite motion by others and which dictates to the worker the pace of his monotonously dull repetition of specialized action. Here the manual laborer functions without a hitch only if he becomes purely mechanical. He dare not think for himself at all, for that may throw him out of gear with the mechanism of which he is a part; he may not lapse into mechanical unconsciousness for any length of time, for he would soon cease to function in conjunction with the machinery. Here brawn is separated from brain to the utmost extent possible in active human beings. Here alone we have a separation of functions that is as complete as in the case of passive capitalism or absentee ownership.

Efficient and final causes, brain and brawn will always remain distinct in their functions; thought as such is never use of muscular energy, and use of muscles is never as such an act of thinking or mental guidance. However, outside of the above extreme case, the two functions are always actually united in all the human agents; there is only a difference in the proportion in which the two functions are combined in any one person into two aspects of a single operation.

With a slight modification arising out of the extreme cases, it would be correct to say that all the human agents in any productive industry, laborers as well as managers, are the efficient cause of the product. The activity of both worker and manager is that of a free personality; it is in either case a direct contribution to the total productive action; in each case something of the person, of his own life's energy, is put into the resulting product. That is why we stated before that all the human agents, as efficient causes, should share in the profits, and that their sharing in profits should prevail over all other factors. No other conclusion can be arrived at, when we view the whole matter from the standpoint of causality.

Within the series of human agents, again, those stand highest whose action is more important for the proper functioning of the entire productive enterprise, who contribute the most indispensable element to its efficient operation. From this standpoint those whose contribution contains more of the element that is characteristic of human nature, *viz.*, rational mind, should have a right to a larger share of benefit out of the enterprise. The higher the contribution of a person in terms of final causality is, or the more creative, the less easily is he replaceable by other persons; the lower a person's contribution is, or the more mechanical, the more easily is he replaceable by others. Hence the former ranks higher in the scale of contributory factors than

the latter. Hence, too, capital ranks lowest, because the personal element is entirely eliminated. The capital as such functions exactly the same no matter who the owner or what his personal abilities.

Within the total series of factors that have a right to share in the values produced, we therefore have two major clashes of interests. One is between the human agents of production and the capitalists. This clash must be decided in favor of the human agents. The other is between the human agents themselves. This is much harder to decide than the former because the decision depends on a set of criteria that are difficult or impossible of accurate measurement; such are, for instance, amount of energy expended, amount of intelligence coming into play, initiative, inventiveness, technical skill, professional ability, personal danger or risk, and the like. It is a matter of moral certainty rather than the certainty resulting out of exact mechanical measurement (physical certainty); and for the closest approximation to such certainty we must be satisfied to use Aristotle's rule of abiding by the best judgment of prudent men.

The present discussion is but a continuation of that of the preceding article. Hence the same caution obtains here as there: Our conclusions are what they are because we have viewed the industrial scheme purely from the angle of causality. Other cautions must also be kept in mind before our conclusions can be made to apply in

the adjudgment of any concrete case. What, for instance, if an industry does not obtain sufficient profits at all to give each human agent a living wage? Then, some would say, the particular industry should cease to exist. But what if no other type of industry can be substituted, so that the human agents cannot help themselves? Then there would indeed be something fundamentally wrong with our whole economic structure.

10. THE MACHINE IN MODERN INDUSTRY

IN preceding articles we touched upon the position of the instrumental cause in the general scheme of causes. We spoke of it as an extension of the efficient cause. This is evident enough for the ordinary hand tools. But does this subordinate position still hold in regard to the vast development that has taken place in our instruments of production, our factory machinery? They are the property of the capitalist, and for that reason, in our present economic scheme, their contribution accrues to the benefit of the capitalistic owner.

Can we reject this view, and logically claim that their contribution should accrue rather to the laborers, since the machine is still but an extension of the efficient cause, *i.e.*, of the human agents taking an active personal part in the productive enterprise?

Certainly the modern machine is not a mere extension of the man who tends it in the same way in which a handsaw is an extension of the carpenter. In the latter case the skill, accuracy, etc., of the sawing are those of the carpenter himself. In modern labor-saving machinery this is no longer the case. A recent description of such an instance runs as follows:

“In several industries the automatic factory is already an actuality. For example, a paint

plant which formerly gave work to five hundred employees has been replaced by an automatic factory in which there are almost no men—only a few engineers and repair workers. There is also a bottle-making factory in which only one machine tender is needed to watch each bottle-making machine. Each machine replaces from fifty to two hundred fifty men and boys. Another example is a modern flour mill in Minneapolis, which, operated by one man, can produce as much flour in one day as eight thousand millers using the ancient hand-tool methods” (Rugg, *The Great Technology*. 1933. p. 70).

In such instances, the ordinary work of a tender consists of little more than pressing a button or turning a switch to set agoing machinery that will do the work of hundreds of men. It would seem absurd to claim that the major portion of the product of such a machine should go to the tender because a machine is an extension of the person operating it. To what is the productive efficiency of such machinery ultimately due?

Today we say in effect that it is due to the invested capital of the absentee owner. Yet no amount of pure capital as such can set up this machinery, much less invent it from its simple beginnings on. There is really no proportion between the qualities of mind and human personality that go to make up our modern machinery, and the passive capital that was used in buying it and setting it up.

The more modern and efficient any piece of machinery is, the more is it also the outcome of a set of conditions and energies that extend over a long period of time. Most new inventions are improvements of previous inventions, or are built up upon them. Literally hundreds of human agents in the course of history, some famous and the majority unheralded and unknown, have gone into the perfecting of our machines of today. Every invention is by itself the result of acute personal abilities or genius working on the accumulated social inheritance of the race. As a reward to the inventor it is but right that he should be given a protective patent that is valid for a definite period of time. But is it equally in the right order of things for the patent rights to be bought up by some company at the lowest possible figure for the continued exploitation of it unto the personal profit of the absentee owner?

The immediate causal factors that operate in conjunction with the machine are the capitalist and the worker. Hence they are entitled to their share of the values produced by the machine. Yet a most important causal factor in machinery production is what one might call the social inheritance of the race. And since we are investigating the situation exclusively from the standpoint of causal contributions, we must conclude that society in general is entitled to more of a share in the values produced by the machine than it is getting under present conditions. This

conclusion lends color to the Christian view that industrial production should not be exclusively guided by the motive of the highest possible profit to owners, but also by the motive of social service or the benefit of the consumers in general.

This conclusion seems the more justifiable if we examine what the actual relation has been of capital to scientific inventions. As long ago as 1911 Woodrow Wilson wrote as follows: "I am not saying that all invention had been stopped by the growth of trusts, but I think it is perfectly clear that invention in many fields has been discouraged, that inventors have been prevented from reaping the full fruits of their ingenuity and industry, and that mankind has been deprived of many comforts and conveniences, as well as the opportunity of buying at lower prices. Do you know, that there is no hospitality for invention today" (quoted on pp. 151-2 of Brandeis, *Other Peoples Money*).

Unfortunately any attack on modern conditions is often taken as a moral accusation against the chief actors concerned. This is often very unjust. Much that occurs is due to our accepted and traditional economic system itself, in terms of which we all function and live. It is therefore high time to examine this system in its totality—a task we shall commence in the next series of articles.

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