On the Nature of Capital

Thorstein Veblen

Among the following samples of emergency currency Nos. 1–8 represent clearing-house certificates; Nos. 9–10, clearing-house checks; Nos. 11–15, cashiers' checks payable to bearer; No. 16, reserve agent exchange; Nos. 17–18, deposit certificates; and Nos. 19–24, manufacturers' pay scrip. For Nos. 6, 8, 15, 21, 22, 23, and 24 I am indebted to the collection of Mr. Theodore H. Price, of New York.

No. 1.

SAN FRANCISCO CLEARING HOUSE CERTIFICATE
SAN FRANCISCO, CALIFORNIA
NOVEMBER 1877
N. P. 491901

No. 2.

PORTLAND CLEARING HOUSE ASSOCIATION
PORTLAND, OREGON, NOVEMBER 2ND 1887

No. 3 (Reverse of No. 2).
No. 7.

Las Vegas Clearing House

hereby certifies that it is endorsed to the bearer to the sum of Five Dollars, payable without interest in cash or demand in money admissible by the Board of Directors... 

President.

No. 8.

The Associated Banks of Howard County, Indiana.

secured by... stamped across相同的...

This certificate is accepted by merchants in good faith and may be deposited in any bank and may be called for redemption on demand under present conditions.

The Associated Banks of Howard County, Indiana.

No. 9.

CHICAGO, NOVEMBER 11th, 1907 No. 7033 3

Chicago Clearing House Association

Pay to the order of $1.00

THE COMMERCIAL NATIONAL BANK
OF CHICAGO

This check is payable only through the Chicago Clearing House and must be collected through a bank.
No. 10.

![Image of a check for $20 to The First National Bank, payable through the Youngstown Clearing House Association.]

No. 11.

![Image of a check for $500 to The Colorado National Bank, payable through the Denver Clearing House.]

No. 12.

![Image of a cashier's check for $1 to The National Bank of Commerce in St. Louis.]

(continued on next page)
No. 13.

FIRST NATIONAL BANK
Memphis, Tenn., Nov. 3, 1907

Pay Richard Roe, or bearer,

Two Dollars

Pay only through Memphis Clearing House in New York Exchange.

COUNTERSIGNED:

Cashier

PRESIDENT

No. 14.

$2.00 CASHIER'S CHECK No. 8

First National Bank of New Carlisle, Indiana

Pay to the order ofBearer on Demand

TWO DOLLARS

First National Bank of New Carlisle.

NOT GOOD UNLESS SIGNED BY PRESIDENT AND CASHIER.

No. 15 (Printed but not issued).
ON THE NATURE OF CAPITAL.

SUMMARY.

The knowledge of ways and means is a communal product, 517.—Access to the common stock of technological knowledge is necessary to the production of a livelihood, 524.—With the advance of the industrial arts the possession of material equipment has become a requisite to the effective use of this common stock of knowledge and skill, 527.—Hence the great advantage of owning capital goods, 530; and hence the dominant position of the owner-employer in modern economic life, 535.—Summary conclusion, 541.

It has been usual in expositions of economic theory to speak of capital as an array of "productive goods." What is immediately had in mind in this expression, as well as in the equivalent "capital goods," is the industrial equipment, primarily the mechanical appliances employed in the processes of industry. When the productive efficiency of these and of other, subsidiary classes of capital goods is subjected to further analysis, it is not unusual to trace it back to the productive labor of the workmen, the labor of the individual workman being the ultimate productive factor in the commonly accepted systems of theory. The current theories of production, as also those of distribution, are drawn in individualistic terms, particularly when these theories are based on hedonistic premises, as they commonly are.

Now, whatever may or may not be true for human conduct in some other bearing, in the economic respect man has never lived an isolated, self-sufficient life as an individual, either actually or potentially. Humanly speaking, such a thing is impossible. Neither an individual person nor a single household, nor a single line of descent, can maintain its life in isolation. Economically speaking,
this is the characteristic trait of humanity that separates mankind from the other animals. The life-history of the race has been a life-history of human communities, of more or less considerable size, with more or less of group solidarity, and with more or less of cultural continuity over successive generations. The phenomena of human life occur only in this form.

This continuity, congruity, or coherence of the group, is of an immaterial character. It is a matter of knowledge, usage, habits of life and habits of thought, not a matter of mechanical continuity or contact, or even of consanguinity. Wherever a human community is met with, as, e.g., among any of the peoples of the lower cultures, it is found in possession of something in the way of a body of technological knowledge,—knowledge serviceable and requisite to the quest of a livelihood, comprising at least such elementary acquirements as language, the use of fire, of a cutting edge, of a pointed stick, of some tool for piercing, of some form of cord, thong, or fibre, together with some skill in the making of knots and lashings. Co-ordinate with this knowledge of ways and means, there is also uniformly present some matter-of-fact knowledge of the physical behavior of the materials with which men have to deal in the quest of a livelihood, beyond what any one individual has learned or can learn by his own experience alone. This information and proficiency in the ways and means of life vests in the group at large; and, apart from accretions borrowed from other groups, it is the product of the given group, tho not produced by any single generation. It may be called the immaterial equipment, or, by a license of speech, the intangible assets of the commu-

1 "Assets" is, of course, not to be taken literally in this connection. The term properly covers a pecuniary concept, not an industrial (technological) one, and it connotes ownership as well as value; and it will be used in this literal sense when, in a later article, ownership and investment come into the discussion. In the present connection it is used figuratively, for want of a better term, to convey the connotation of value and serviceability without thereby implying ownership.
nity; and, in the early days at least, this is far and away the most important and consequential category of the community's assets or equipment. Without access to such a common stock of immaterial equipment no individual and no fraction of the community can make a living, much less make an advance. Such a stock of knowledge and practice is perhaps held loosely and informally; but it is held as a common stock, pervasively, by the group as a body, in its corporate capacity, as one might say; and it is transmitted and augmented in and by the group, however loose and haphazard the transmission may be conceived to be, not by individuals and in single lines of inheritance.

The requisite knowledge and proficiency of ways and means is a product, perhaps a by-product, of the life of the community at large; and it can also be maintained and retained only by the community at large. Whatever may be true for the unsearchable prehistoric phases of the life-history of the race, it appears to be true for the most primitive human groups and phases of which there is available information that the mass of technological knowledge possessed by any community, and necessary to its maintenance and to the maintenance of each of its members or subgroups, is too large a burden for any one individual or any single line of descent to carry. This holds true, of course, all the more rigorously and consistently, the more advanced the "state of the industrial arts" may be. But it seems to hold true with a generality that is fairly startling that whenever a given cultural community is broken up or suffers a serious diminution of members, its technological heritage deteriorates and dwindles, even tho it may have been apparently meagre enough before. On the other hand, it seems to hold true with a similar uniformity that, when an individual member or a fraction of a community on what we call a lower stage
of economic development is drawn away and trained and instructed in the ways of a larger and more efficient technology, and is then thrown back into his home community, such an individual or fraction proves unable to make head against the technological bent of the community at large or even to create a serious diversion. Slight, perhaps transient, and gradually effective technological consequences may result from such an experiment; but they become effective by diffusion and assimilation through the body of the community, not in any marked degree in the way of an exceptional efficiency on the part of the individual or fraction which has been subjected to exceptional training. And inheritance in technological matters runs not in the channels of consanguinity, but in those of tradition and habituation, which are necessarily as wide as the scheme of life of the community. Even in a relatively small and primitive community the mass of detail comprised in its knowledge and practice of ways and means is large,—too large for any one individual or household to become competently expert in it all; and its ramifications are extensive and diverse at the same time that all these ramifications bear, directly or indirectly, on the life and work of each member of the community. Neither the standard and routine of living nor the daily work of any individual in the community would remain the same after the introduction of an appreciable change, for good or ill, in any branch of the community's equipment of technological expedients. If the community grows larger, to the dimensions of a modern civilized people, and this immaterial equipment grows proportionately great and various, then it will become increasingly difficult to trace the connection between any given change in technological detail and the fortunes of any given obscure member of the community. But it is at least safe to say that an increase in the volume and complexity of the body of technological
knowledge and practise does not progressively emancipate the life and work of the individual from its dominion.

The complement of technological knowledge so held, used, and transmitted in the life of the community is, of course, made up out of the experience of individuals. Experience, experimentation, habit, knowledge, initiative, are phenomena of individual life, and it is necessarily from this source that the community's common stock is all derived. The possibility of its growth lies in the feasibility of accumulating knowledge gained by individual experience and initiative, and therefore it lies in the feasibility of one individual's learning from the experience of another. But the initiative and technological enterprise of individuals, such, e.g., as shows itself in inventions and discoveries of more and better ways and means, proceeds on and enlarges the accumulated wisdom of the past. Individual initiative has no chance except on the ground afforded by the common stock, and the achievements of such initiative are of no effect except as accretions to the common stock. And the invention or discovery so achieved always embodies so much of what is already given that the creative contribution of the inventor or discoverer is trivial by comparison.

In any known phase of culture this common stock of intangible, technological equipment is relatively large and complex,—i.e., relatively to the capacity of any individual member to create or to use it; and the history of its growth and use is the history of the development of material civilization. It is a knowledge of ways and means, and is embodied in the material contrivances and processes by means of which the members of the community make their living. Only by such means does technological efficiency go into effect. These "material contrivances" ("capital goods," material equipment) are such things as tools, vessels, vehicles, raw materials,
buildings, ditches, and the like, including the land in use; but they include also, and through the greater part of the early development chiefly, the useful minerals, plants, and animals. To say that these minerals, plants, and animals are useful—in other words, that they are economic goods—means that they have been brought within the sweep of the community's knowledge of ways and means.

In the relatively early stages of primitive culture the useful plants and minerals are, no doubt, made use of in a wild state, as, e.g., fish and timber have continued to be used. Yet in so far as they are useful they are unmistakably to be counted in among the material equipment ("tangible assets") of the community. The case is well illustrated by the relation of the Plains Indians to the buffalo, and by the north-west coast Indians to the salmon, on the one hand, and by the use of a wild flora by such communities as the Coahuila Indians, the Australian blacks, or the Andamanese, on the other hand.

But with the current of time, experience, and initiative, domesticated (that is to say improved) plants and animals come to take the first place. We have then such "technological expedients" in the first rank as the many species and varieties of domestic animals, and more particularly still the various grains, fruits, root crops, and the like, virtually all of which were created by man for human use; or perhaps a more scrupulously veracious account would say that they were in the main created by the women through long ages of workmanlike selection and cultivation. These things, of course, are useful because men have learned their use, and their use, so far as it has been learned, has been learned by protracted and voluminous experience and experimentation, proceeding at each step on the accumulated achievements of the past. Other things, which may in time come to exceed these in
usefulness are still useless, economically non-existent, on the early levels of culture, because of what men in that time have not yet learned.

While this immaterial equipment of industry, the intangible assets of the community, have apparently always been relatively very considerable and are always mainly in the keeping of the community at large, the material equipment, the tangible assets, on the other hand, have, in the early stages (say the earlier 90 per cent.) of the life-history of human culture, been relatively slight, and have apparently been held somewhat loosely by individuals or household groups. This material equipment is relatively very slight in the earlier phases of technological development, and the tenure by which it is held is apparently vague and uncertain. At a relatively primitive phase of the development, and under ordinary conditions of climate and surroundings, the possession of the concrete articles ("capital goods") needed to turn the commonplace knowledge of ways and means to account is a matter of slight consequence,—contrary to the view commonly spoken for by the economists of the classical line. Given the commonplace technological knowledge and the commonplace training,—and these are given by common notoriety and the habituation of daily life,—the acquisition, construction, or usufruct of the slender material equipment needed arranges itself almost as a matter of course, more particularly where this material equipment does not include a stock of domestic animals or a plantation of domesticated trees and vegetables. Under given circumstances a relatively primitive technological scheme may involve some large items of material equipment, as the buffalo pens (piskun) of the Blackfoot Indians or the salmon weirs of the river Indians of the north-west coast. Such items of material equipment
are then likely to be held and worked collectively, either by the community at large or by subgroups of a considerable size. Under ordinary, more generally prevalent conditions it appears that even after a relatively great advance has been made in the cultivation of crops the requisite industrial equipment is not a matter for serious concern, particularly so aside from the tilled ground and the cultivated trees, as is indicated by the singularly loose and inconsequential notions of ownership prevalent among peoples occupying such a stage of culture. A primitive stage of communism is not known.

But, as the common stock of technological knowledge increases in volume, range, and efficiency, the material equipment whereby this knowledge of ways and means is put into effect grows greater, more considerable relatively to the capacity of the individual. And so soon, or in so far, as the technological development falls into such shape as to require a relatively large unit of material equipment for the effective pursuit of industry, or such as otherwise to make the possession of the requisite material equipment a matter of consequence, so as seriously to handicap the individuals who are without these material means, and to place the current possessors of such equipment at a marked advantage, then the strong arm intervenes, property rights apparently begin to fall into definite shape, the principles of ownership gather force and consistency, and men begin to accumulate capital goods and take measures to make them secure.

An appreciable advance in the industrial arts is commonly followed or accompanied by an increase of population. The difficulty of procuring a livelihood may be no greater after such an increase: it may even be less; but there results a relative curtailment of the available area and raw materials, and commonly also an increased accessibility of the several portions of the community. A wide-
reaching control becomes easier. At the same time a larger unit of material equipment is needed for the effective pursuit of industry. As this situation develops, it becomes worth while—that is to say, it becomes feasible—for the individual with the strong arm to engross, or "corner," the usufruct of the commonplace knowledge of ways and means by taking over such of the requisite material as may be relatively scarce and relatively indispensable for procuring a livelihood under the current state of the industrial arts. Circumstances of space and numbers prevent escape from the new technological situation. The commonplace knowledge of ways and means cannot be turned to account, under the new conditions, without a material equipment adapted to the then current state of the industrial arts; and such a suitable material equipment is no longer a slight matter to be compassed by workmanlike initiative and application. Beati possidentes.

The emphasis of the technological situation, as one might say, may fall now on one line of material items, now on another, according as the exigencies of climate, topography, flora and fauna, density of population, and the like, may decide. So also, under the rule of the same exigencies, the early growth of property rights and of the principles (habits of thought) of ownership may settle on one or another line of material items, according as one or another affords the strategic advantage for engrossing the current technological efficiency of the community.

Should the technological situation, the state of the industrial arts, be such as to throw the strategic emphasis on manual labor, on workmanlike skill and application, and

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1 Motives of exploit and emulation, no doubt, play a serious part in bringing on the practise of ownership and in establishing the principles on which it rests; but this play of motives and the concomitant growth of institutions cannot be taken up here. Cf. Theory of the Leisure Class, chaps. i, ii, iii.
if at the same time the growth of population has made land relatively scarce, or hostile contact with other communities has made it impracticable for members of the community to range freely over outlying tracts, then it would be expected that the growth of ownership should take the direction primarily of slavery, or of some equivalent form of servitude, so effecting a naive and direct monopolistic control of the current knowledge of ways and means.\(^1\) Whereas if the development has taken such a turn, and the community is so placed as to make the quest of a livelihood a matter of the natural increase of flocks and herds, then it should reasonably be expected that these items of equipment will be the chief and primary subject of property rights. In point of fact, it appears that a pastoral culture commonly involves also some degree of servitude, along with the ownership of flocks and herds.

Under different circumstances the mechanical appliances of industry, or the tillable land, might come into the position of strategic advantage, and might come in for the foremost place in men's consideration as objects of ownership. The evidence afforded by the known (relatively) primitive cultures and communities seems to indicate that slaves and cattle have in this way come into the primacy as objects of ownership at an earlier period in the growth of material civilization than land or the mechanical appliances. And it seems similarly evident—more so, indeed—that land has on the whole preceded the mechanical equipment as the stronghold of ownership and the means of engrossing the community's industrial efficiency.

It is not until a late period in the life-history of material civilization that ownership of the industrial equipment, in the narrower sense in which that phrase is commonly

\(^1\)Cf. H. Nieboer, Slavery as an Industrial System, chap. iv., sect. 12.
employed, comes to be the dominant and typical method of engrossing the immaterial equipment. Indeed, it is a consummation which has been reached only a very few times even partially, and only once with such a degree of finality as to leave the fact indisputable. If it may be said, loosely, that mastery through the ownership of slaves, cattle, or land comes on in force only after the economic development has run through some nine-tenths of its course hitherto, then it may be said likewise that some ninety-nine one-hundredths of this course of development had been completed before the ownership of the mechanical equipment came into undisputed primacy as the basis of pecuniary dominion. So late an innovation, indeed, is this modern institution of "capitalism,"—the predominant ownership of industrial capital as we know it,—and yet so intimate a fact is it in our familiar scheme of life, that we have some difficulty in seeing it in perspective at all, and we find ourselves hesitating between denying its existence, on the one hand, and affirming it to be a fact of nature antecedent to all human institutions, on the other hand.

In so speaking of the ownership of industrial equipment as being an institution for cornering the community's intangible assets, there is conveyed an unavoidably implied, tho unintended, note of condemnation. Such an implication of merit or demerit is an untoward circumstance in any theoretical inquiry. Any sentimental bias, whether of approval or disapproval, aroused by such an implied censure, must unavoidably hamper the dispassionate pursuit of the argument. To mitigate the effect of this jarring note as far as may be, therefore, it will be expedient to turn back for a moment to other more primitive and remoter forms of the institution,—as slavery and landed wealth,—and so reach the modern facts of industrial capital by a roundabout and gradual approach.
These ancient institutions of ownership, slavery and landed wealth, are matters of history. Considered as dominant factors in the community's scheme of life, their record is completed; and it needs no argument to enforce the proposition that it is a record of economic dominion by the owners of the slaves or the land, as the case may be. The effect of slavery in its best day, and of landed wealth in medieaval and early modern times, was to make the community's industrial efficiency serve the needs of the slave-owners in the one case and of the land-owners in the other. The effect of these institutions in this respect is not questioned now, except in such sporadic and apologetical fashion as need not detain the argument.

But the fact that such was the direct and immediate effect of these institutions of ownership in their time by no means involves the instant condemnation of the institutions in question. It is quite possible to argue that slavery and landed wealth, each in its due time and due cultural setting, have served the amelioration of the lot of man and the advance of human culture. What these arguments may be that aim to show the merits of slavery and landed wealth as a means of cultural advance does not concern the present inquiry, neither do the merits of the case in which the arguments are offered. The matter is referred to here to call to mind that any similar theoretical outcome of an analysis of the productivity of "capital goods" need not be admitted to touch the merits of the case in controversy between the socialistic critics of capitalism and the spokesmen of law and order.

The nature of landed wealth, in point of economic theory, especially as regards its productivity, has been sifted with the most jealous precautions and the most tenacious logic during the past century; and any economic student can easily review the course of the argument whereby that line of economic theory has been run to earth. It is only
necessary here to shift the point of view slightly to bring
the whole argument concerning the rent of land to bear
on the present question. Rent is of the nature of a diffe-
rential gain, resting on a differential advantage in point
of productivity of the industry employed upon or about it.
This differential advantage attaching to a given parcel of
land may be a differential as against another parcel or as
against industry applied apart from land. The differential
advantage attaching to agricultural land—e.g., as against
industry at large—rests on certain broad peculiarities of
the technological situation. Among them are such pecu-
liarities as these: the human species, or the fraction of it
concerned in the case, is numerous, relatively to the extent
of its habitat; the methods of getting a living, as hitherto
elaborated, the ways and means of life, make use of certain
crop plants and certain domestic animals. Apart from
such conditions, taken for granted in arguments concern-
ing agricultural rent, there could manifestly be no differ-
ential advantage attaching to land and no production of
rent. With increased command of methods of transpor-
tation, the agricultural lands of England, e.g., and of
Europe at large, declined in value, not because these lands
became less fertile, but because an equivalent result could
more advantageously be got by a new method. So, again,
the flint- and amber-bearing regions that are now Danish
and Swedish territory about the waters at the entrance
to the Baltic were in the neolithic culture of northern
Europe the most favored and valuable lands within that
cultural region. But, with the coming of the metals and
the relative decline of the amber trade, they began to fall
behind in the scale of productivity and preference. So
also in later time, with the rise of "industry" and the
growth of the technology of communication, urban prop-
erty has gained, as contrasted with rural property, and
land placed in an advantageous position relatively to
shipping and railroads has acquired a value and a "productiveness" which could not be claimed for it apart from these modern technological expedients.

The argument of the single-tax advocates and other economists as to the "unearned increment" is sufficiently familiar, but its ulterior implications have not commonly been recognized. The unearned increment, it is held, is produced by the growth of the community in numbers and in the industrial arts. The contention seems to be sound, and is commonly accepted; but it has commonly been overlooked that the argument involves the ulterior conclusion that all land values and land productivity, including the "original and indestructible powers of the soil," are a function of the "state of the industrial arts." It is only within the given technological situation, the current scheme of ways and means, that any parcel of land has such productive powers as it has. It is, in other words, useful only because, and in so far, and in such manner, as men have learned to make use of it. This is what brings it into the category of "land," economically speaking. And the preferential position of the landlord as a claimant of the "net product" consists in his legal right to decide whether, how far, and on what terms men shall put this technological scheme into effect in those features of it which involve the use of his parcel of land.

All this argument concerning the unearned increment may be carried over, with scarcely a change of phrase, to the case of "capital goods." The Danish flint supply was of first-rate economic consequence, for a thousand years or so, during the stone age; and the polished-flint utensils of that time were then "capital goods" of inestimable importance to civilization, and were possessed of a "productivity" so serious that the life of mankind in that world may be said to have been balanced on the
fine-ground edge of those magnificent polished-flint axes. All that lasted through its technological era. The flint supply and the mechanical expedients and "capital goods," whereby it was turned to account, were valuable and productive then, but neither before nor after that time. Under a changed technological situation the capital goods of that time have become museum exhibits, and their place in human economy has been taken by technological expedients which embody another "state of the industrial arts," the outcome of later and different phases of human experience. Like the polished-flint axe, the metal utensils which gradually displaced it and its like in the economy of the Occidental culture were the product of long experience and the gradual learning of ways and means. The steel axe, as well as the flint axe, embodies the same ancient technological expedient of a cutting edge, as well as the use of a helve and the efficiency due to the weight of the tool. And in the case of the one or the other, when seen in historical perspective and looked at from the point of view of the community at large, the knowledge of ways and means embodied in the utensils was the serious and consequential matter. The construction or acquisition of the concrete "capital goods" was simply an easy consequence. It "cost nothing but labor," as Thomas Mun would say.

Yet it might be argued that each concrete article of "capital goods" was the product of some one man's labor, and, as such, its productivity, when put to use, was but the indirect, ulterior, deferred productiveness of the maker's labor. But the maker's productivity in the case was but a function of the immaterial technological equipment at his command, and that in its turn was the slow spiritual distillate of the community's time-long experience and initiative. To the individual producer or owner, to whom the community's accumulated stock of
immaterial equipment was open by common notoriety, the cost of the concrete material goods would be the effort involved in making or getting them and in making good his claim to them. To his neighbor who had made or acquired no such parcel of "productive goods," but to whom the resources of the community, material and immaterial, were open on the same easy terms, the matter would look very much the same. He would have no grievance, nor would he have occasion to seek one. Yet, as a resource in the maintenance of the community's life and a factor in the advance of material civilization, the whole matter would have a different meaning.

So long, or rather in so far, as the "capital goods" required to meet the technological demands of the time were slight enough to be compassed by the common man with reasonable diligence and proficiency, so long the draft upon the common stock of immaterial assets by any one would be no hindrance to any other, and no differential advantage or disadvantage would emerge. The economic situation would answer passably to the classical theory of a free competitive system,—"the simple and obvious system of natural liberty," which rests on the presumption of equal opportunity. In a roughly approximate way, such a situation supervened in the industrial life of western Europe on the transition from mediaval to modern times, when handicraft and "industrial" enterprise superseded landed wealth as the chief economic factor. Within the "industrial system," as distinct from the privileged non-industrial classes, a man with a modicum of diligence, initiative, and thrift might make his way in a tolerable fashion without special advantages in the way of prescriptive right or accumulated means. The principle of equal opportunity was, no doubt, met only in a very rough and dubious fashion; but so favorable became the conditions in this respect that men came to persuade
themselves in the course of the eighteenth century that a substantially equitable allotment of opportunities would result from the abrogation of all prerogatives other than the ownership of goods. But so precarious and transient was this approximation to a technologically feasible system of equal opportunity that, while the liberal movement which converged upon this great economic reform was still gathering head, the technological situation was already outgrowing the possibility of such a scheme of reform. After the Industrial Revolution came on, it was no longer true, even in the roughly approximate way in which it might have been true some time earlier, that equality before the law, barring property rights, would mean equal opportunity. In the leading, aggressive industries which were beginning to set the pace for all that economic system that centred about the market, the unit of industrial equipment, as required by the new technological era, was larger than one man could compass by his own efforts with the free use of the commonplace knowledge of ways and means. And the growth of business enterprise progressively made the position of the small, old-fashioned producer more precarious. But the speculative theorists of that time still saw the phenomena of current economic life in the light of the handicraft traditions and of the preconceptions of natural rights associated with that system, and still looked to the ideal of "natural liberty" as the goal of economic development and the end of economic reform. They were ruled by the principles (habits of thought) which had arisen out of an earlier situation, so effectually as not to see that the rule of equal opportunity which they aimed to establish was already technologically obsolete.¹

During the hundred years and more of this ascendency

¹For a more extended discussion of this point see the Quarterly Journal of Economics, July, 1899, "The Preconceptions of Economic Science"; also the Theory of Business Enterprise, chap. iv., especially pp. 70-82.
of the natural-rights theories in economic science, the
growth of technological knowledge has unremittingly gone
forward, and concomitantly the large-scale industry has
grown great and progressively dominated the field. This
large-scale industrial régime is what the socialists, and
some others, call "capitalism." "Capitalism," as so
used, is not a neat and rigid technical term, but it is
definite enough to be useful for many purposes. On its
technological side the characteristic trait of this capi-
talism is that the current pursuit of industry requires a
larger unit of material equipment than one individual
can compass by his own labor, and larger than one person
can make use of alone.

So soon as the capitalist régime, in this sense, comes in,
it ceases to be true that the owner of the industrial equip-
ment (or the controller of it) in any given case is or may
be the producer of it, in any naïve sense of "production."
He is under the necessity of acquiring its ownership or
control by some other expedient than that of industrially
productive work. The pursuit of industry requires an
accumulation of wealth, and, barring force, fraud, and
inheritance, the method of acquiring such an accumula-
tion of wealth is necessarily some form of bargaining;
that is to say, some form of business enterprise. Wealth
is accumulated, within the industrial field, from the gains
of business; that is to say, from the gains of advantageous
bargaining.\footnote{Marx holds that the "primitive accumulation" from which capitalism takes its rise is a matter of force and fraud (Capital, Book I., chap. xxiv.). Sombart holds the source to have been landed wealth (Moderne Kapitalismus, Book II., Part II., especially chap. xii.). Ehrenberg and other critics of Sombart incline to the view that the most important source was usury and the petty trade (Zeitalter der Fugger, chaps. i., ii.).} Taking the situation by and large, looking
to the body of business enterprise as a whole, the advan-
tageous bargaining from which gains accrue and from
which, therefore, accumulations of capital are derived, is
necessarily, in the last analysis, a bargaining between
those who own (or control) industrial wealth and those whose work turns this wealth to account in productive industry. This bargaining for hire—commonly a wage agreement—is conducted under the rule of free contract, and is concluded according to the play of demand and supply, as has been well set forth by many writers.

On this technological view of capital, as here spoken for, the relations between the two parties to the bargain, the capitalist-employer and the working class, stand as follows. More or less rigorously, the technological situation enforces a certain scale and method in the various lines of industry.¹ The industry can, in effect, be carried on only by recourse to the technologically requisite scale and method, and this requires a material equipment of a certain (large) magnitude; while material equipment of this required magnitude is held exclusively by the capitalist-employer, and is de facto beyond the reach of the common man.

A corresponding body of immaterial equipment—knowledge and practice of ways and means—is likewise requisite, under the rule of the same technological exigencies. This immaterial equipment is in part drawn on in the making of the material equipment held by the capitalist-employers, in part in the use to be made of this material equipment in the further processes of industry. This body of immaterial equipment so drawn on in any line of industry is, relatively, still larger, being, on any exhaustive analysis, virtually the whole body of industrial experience accumulated by the community up to date. A free draft on this common stock of technological wis-

¹ The phrase "more or less" covers a certain margin of tolerance in respect of scale and method, which may be very appreciably wider in some lines of industry than in others, and which cannot be more adequately defined or described here within such spaces as could reasonably be allowed. The requirement of scale and method is enforced by competition. The force and reach of this competitive adjustment can also not be dealt with here, but the familiar current acceptance of the fact will dispense with details.
dom must be had both in the construction and in the subsequent use of the material equipment; altho no one person can master, or himself employ, more than an inconsiderable fraction of the immaterial equipment so drawn on for the installation or operation of any given block of the material equipment.

The owner of the material equipment, the capitalist-employer, is, in the typical case, not possessed of any appreciable fraction of the immaterial equipment necessarily drawn on in the construction and subsequent use of the material equipment owned (controlled) by him. His knowledge and training, so far as it enters into the question, is a knowledge of business, not of industry.\(^1\) The slight technological proficiency which he has or needs for his business ends is of a general character, wholly superficial and impracticable in point of workmanlike efficiency; nor is it turned to account in actual workmanship. He therefore "needs in his business" the service of persons who have a competent working mastery of this immaterial technological equipment, and it is with such persons that his bargains for hire are made. By and large, the measure of their serviceability for his ends is the measure of their technological competency. No workman not possessed of some fractional mastery of the technological requirements is employed,—imbeciles are useless in proportion to their imbecility; and even unskilled and "unintelligent" workmen, so called, are of relatively little use, altho they may be possessed of a proficiency in the commonplace industrial details such as would bulk large in absolute magnitude. The "common laborer" is, in fact, a highly trained and widely proficient workman when contrasted with the conceivable human blank supposed to have drawn on the community for nothing but his physique.

\(^1\) Cf. Theory of Business Enterprise, chap. iii.
In the hands of these workmen—the industrial community, the bearers of the immaterial, technological equipment—the capital goods owned by the capitalist become a "means of production." Without them, or in the hands of men who do not know their use, the goods in question would be simply raw materials, somewhat deranged and impaired through having been given the form which now makes them "capital goods." The more proficient the workmen in their mastery of the technological expediens involved, and the greater the facility with which they are able to put these expediens into effect, the more productive will be the processes in which the workmen turn the employer's capital goods to account. So, also, the more competent the work of "superintendence," the foremanlike oversight and correlation of the work in respect of kind, speed, volume, the more will it count in the aggregate of productive efficiency. But this work of correlation is a function of the foreman's mastery of the technological situation at large and his facility in proportioning one process of industry to the requirements and effects of another. Without this due and sagacious correlation of the processes of industry, and their current adaptation to the demands of the industrial situation at large, the material equipment engaged would have but slight efficiency and would count for but little in the way of capital goods. The efficiency of the control exercised by the master-workman, engineer, superintendent, or whatever term may be used to designate the technological expert who controls and correlates the productive processes,—this workmanlike efficiency determines how far the given material equipment is effectually to be rated as "capital goods."

Through all this functioning of the workman and the foreman the capitalist's business ends are ever in the background, and the degree of success that attends his busi-
ness endeavors depends, other things equal, on the efficiency with which these technologists carry on the processes of industry in which he has invested. His working arrangements with these workmen, the bearers of the immaterial equipment engaged, enables the capitalist to turn the processes for which his capital goods are adapted to account for his own profit, but at the cost of such a deduction from the aggregate product of these processes as the workmen may be able to demand in return for their work. The amount of this deduction is determined by the competitive bidding of other capitalists who may have use for the same lines of technological efficiency, in the manner set forth by writers on wages.

With the conceivable consolidation of all material assets under one business management, so as to eliminate competitive bidding between employers, it is plain that the resulting business concern would command the undivided forces of the technological situation, with such deduction as is involved in the livelihood of the working population. This livelihood would in such a case be reduced to the most economical footing, as seen from the standpoint of the employer. And the employer (capitalist) would be the de facto owner of the community's aggregate knowledge of ways and means, except so far as this body of immaterial equipment serves also the housekeeping routine of the working population. How nearly the current economic situation may approach to this finished state is a matter of opinion. There is also place for a broad question whether the conditions are more or less favorable to the working population under the existing business régime, involving competitive bidding between the several business concerns, than they would be in case a comprehensive business consolidation had eliminated competition and placed the ownership of the material assets on a footing of unqualified monopoly. Nothing but vague
surmises can apparently be offered in answer to these questions.

But as bearing on the question of monopoly and the use of the community's immaterial equipment it is to be kept in mind that the technological situation as it stands to-day does not admit of a complete monopolization of the community's technological expediants, even if a complete monopolization of the existing aggregate of material property were effected. There is still current a large body of industrial processes to which the large-scale methods do not apply and which do not presume such a large unit of material equipment or involve such rigorous correlation with the large-scale industry as to take them out of the range of discretionary use by persons not possessed of appreciable material wealth. Typical of such lines of work, hitherto not amenable to monopolization, are the details of housekeeping routine alluded to above. It is, in fact, still possible for an appreciable fraction of the population to "pick up a living," more or less precarious, without recourse to the large-scale processes that are controlled by the owners of the material assets. This somewhat precarious margin of free recourse to the commonplace knowledge of ways and means appears to be what stands in the way of a neater adjustment of wages to the "minimum of subsistence" and the virtual ownership of the immaterial equipment by the owners of the material equipment.

It follows from what has been said that all tangible¹ assets owe their productivity and their value to the immaterial industrial expediants which they embody or which their ownership enables their owner to engross. These immaterial industrial expediants are necessarily a product of the community, the immaterial residue of the commu-

¹ "Tangible assets" is here taken to signify serviceable capital goods considered as valuable possessions yielding income to their owner
nity's experience, past and present, which has no existence apart from the community's life, and can be transmitted only in the keeping of the community at large. It may be objected by those who make much of the productivity of capital that tangible capital goods on hand are themselves of value and have a specific productive efficiency, if not apart from the industrial processes in which they serve, then at least as a prerequisite to these processes, and therefore a material condition-precedent standing in a causal relation to the industrial product. But these material goods are themselves a product of the past exercise of technological knowledge, and so back to the beginning. What there is involved in the material equipment, which is not of this immaterial, spiritual nature, and so what is not an immaterial residue of the community's experience, is the raw material out of which the industrial appliances are constructed, with the stress falling wholly on the "raw."

The point is illustrated by what happens to a mechanical contrivance which goes out of date because of a technological advance and is displaced by a new contrivance embodying a new process. Such a contrivance "goes to the junk-heap," as the phrase has it. The specific technological expedient which it embodies ceases to be effective in industry, in competition with "improved methods." It ceases to be an immaterial asset. When it is in this way eliminated, the material repository of it ceases to have value as capital. It ceases to be a material asset. "The original and indestructible powers" of the material constituents of capital goods, to adapt Ricardo's phrase, do not make these constituents capital goods; nor, indeed, do these original and indestructible powers of themselves bring the objects in question into the category of economic goods at all. The raw materials—land, minerals, and the like—may, of course, be valuable property,
and may be counted among the assets of a business. But the value which they so have is a function of the anticipated use to which they may be put, and that is a function of the technological situation under which it is anticipated that they will be useful.

All this may seem to undervalue or perhaps to overlook the physical facts of industry and the physical nature of commodities. There is, of course, no call to undervalue the importance of material goods or of manual labor. The goods about which this inquiry turns are the products of trained labor working on the available materials; but the labor has to be trained, in the large sense, in order to be labor, and the materials have to be available in order to be materials of industry. And both the trained efficiency of the labor and the availability of the material objects engaged are a function of the "state of the industrial arts."

Yet the state of the industrial arts is dependent on the traits of human nature, physical, intellectual, and spiritual, and on the character of the material environment. It is out of these elements that the human technology is made up; and this technology is efficient only as it meets with the suitable material conditions and is worked out, practically, in the material forces required. The brute forces of the human animal are an indispensable factor in industry, as are likewise the physical characteristics of the material objects with which industry deals. And it seems bootless to ask how much of the products of industry or of its productivity is to be imputed to these brute forces, human and non-human, as contrasted with the specifically human factors that make technological efficiency. Nor is it necessary to go into questions of that import here, since the inquiry here turns on the productive relation of capital to industry; that is to say, the relation
of the material equipment and its ownership to men's dealings with the physical environment in which the race is placed. The question of capital goods (including that of their ownership and therefore including the question of investment) is a question of how mankind as a species of intelligent animals deals with the brute force at its disposal. It is a question of how the human agent deals with his means of life, not of how the forces of the environment deal with man. Questions of the latter class belong under the head of ecology, a branch of the biological sciences dealing with the adaptive variability of plants and animals. Economic inquiry would belong under that category if the human response to the forces of the environment were instinctive and variational only, including nothing in the way of a technology. But in that case there would be no question of capital goods, or of capital, or of labor. Such questions do not arise in relation to the non-human animals.

In an inquiry into the productivity of labor some perplexity might be met with as to the share or the place of the brute forces of the human organism in the theory of production; but in relation to capital that question does not arise, except so far as these forces are involved in the production of the capital goods. As a parenthesis, more or less germane to the present inquiry into capital, it may be remarked that an analysis of the productive powers of labor would apparently take account of the brute energies of mankind (nervous and muscular energies) as material forces placed at the disposal of man by circumstances largely beyond human control, and in great part not theoretically dissimilar to the like nervous and muscular forces afforded by the domestic animals.

Thorstein Veblen.

Stanford University.