

## CHAPTER III — WANTS AND VALUE

### I. THE WANTS OF MAN

The wants of man are the underlying motive of all economic activity, and consequently the starting-point of economic science. The whole of political economy could therefore be introduced into this chapter.

Every living being, in order to develop and accomplish its purposes, needs to borrow certain elements from the world around it, and, when they are lacking, the result is, first, suffering, and finally, death. From the plant, and even from the crystal, up to man, this necessity increases with the increase of individuality. Every want, so long as it is unsatisfied, gives rise in living beings to an impulse which seeks the means of satisfaction, and, as soon as it finds it, becomes a *desire*. This desire in its turn induces the *effort* necessary to obtain the object that will satisfy it.

Now because effort is always more or less painful, man sets his wits to work to get the maximum of satisfaction with the minimum of effort. This law — the law of least effort, called by economists the hedonistic principle, from the Greek *ἡδονή*, meaning pleasure or satisfaction — is the basis of all economic science and of industry as well, for every mechanical discovery, every improvement in organization, all economic progress, in short, derives from this principle.

But political economy is not therefore based on idleness, for the law of least effort implies not so much a distaste for effort as a wise economy of effort — that is to say, a more useful employment of time and labour. The most active men in business, just like the best trained athletes, are those who make the best application of this law.

The wants of man have several characteristics, each of which is of great importance because some great economic law is based on it. These characteristics are as follows: —

(1) Man's wants are *unlimited in number*. This feature distinguishes man from the animals, and is the mainspring of civilization in the strictest sense of the word, for to civilize a people is only to increase its wants — as we see in colonization.

The wants of humanity are like those of a child. At birth the child needs nothing but a little milk and a warm covering; but little by little he requires more varied food, more complicated garments, and something to play with; each year gives rise to some new desire. In primitive communities man's wants are almost all primary ones — the physiological needs we have just mentioned; other wants are still unknown. But the more we see the more we learn, and the more our curiosity is awakened, the more do our desires increase and multiply. So also we are conscious to-day of a thousand wants that were unknown to our grandfathers: wants of comfort, hygiene, cleanliness, education, travel, intercourse — the taste for flowers is of quite recent date — and it is certain that our grandchildren will feel yet new wants. If we were to discover, on another planet, beings superior to man, we should no doubt find among them a multitude of wants of which we in this world can have no idea.<sup>1</sup>

This indefinite multiplication of wants, then, has created modern civilization and all that we call progress. This does not mean that it makes men happier. It has often been remarked that the multiplication of desires and of desirable objects — otherwise called wealth — has no necessary connection with the increase of happiness.

Moreover, it must be observed that even purely economic wants are not devoid of moral value. In fact, every new want constitutes a new social *bond*, for we can generally only satisfy our wants by the aid of our neighbour, and this strengthens the sentiment of solidarity. The man who has no wants — the hermit — is sufficient unto himself, which is precisely what a man should not be. As for the working classes, we should rejoice, and not regret, that new

<sup>1</sup> It would be useful, alike from the economic and the moral point of view, if we could draw up a hierarchy or scale of wants. But there is no standard available for this purpose.

Perhaps, however, we should be right in thinking that the importance of wants can be measured by the order of their appearance in history or pre-history, if sociology could supply us with sufficiently precise information. It is obvious that the want of *food* came first. That of *defence* of the individual against animals or enemies must have followed it very closely. That explains the longstanding and terrible importance of the need for *weapons*, which was no doubt just as great, or even greater, in the life and work of men of the stone age as it is in the budgets of civilized countries in the twentieth century. But the curious and unexpected thing is that the want of *ornament* came before that of clothing. This is the first of the wants that distinguish men from animals. As Théophile Gautier has observed: "No dog ever conceived of wearing ear-rings; but the stupid Papuans, who eat clay and earthworms, hang coloured berries and shells in their ears." On the other hand, the need for *rapid communication* came much later, but has increased enormously in modern times.

wants and desires continually torment them; for otherwise they would have remained in a state of eternal slavery.

(2) Wants are *limited in intensity*. This is one of the most important propositions in political economy, for on it, as we shall see, is founded the new theory of value.

Wants are limited in the sense that a certain amount of some object or other is sufficient to satisfy each of them. A man needs only a certain quantity of water to assuage his thirst.

But there is more in it than that. Every want goes on decreasing in intensity as it becomes satisfied, up to the point of *satiety*. At this point the want disappears and is replaced by disgust or even suffering.<sup>1</sup> To suffer thirst is the worst of torments; but so was the medieval "water torture," by which the victim was compelled to swallow excessive quantities of water.

The more natural or *physiological* a want is, the more clearly marked is its limit. It is easy to tell how many pounds of bread and how many pints of water a man needs. But the more artificial or *social* a want is, the more elastic is its limit. Certainly it is scarcely possible to say how many horses would be needed by a sportsman, how many yards of lace by a fashionable woman, how many rubies by an Indian prince, and, above all, how much money by any civilized man, before these people were fully satisfied and cried "Enough!" Nevertheless, we may say that for them too satiety is inevitable. At all events, as each new object is added to those already possessed, the resulting pleasure goes on rapidly diminishing.

It is true that in the case of money satiety is rare and almost inconceivable. This is for the very simple reason that money is the only kind of wealth which has the property of satisfying, not one definite want, but *all* possible wants; consequently it only ceases to be desired when all other wants have been met. This puts back the limit to an almost infinite distance. None the less it is evident that an *extra* half-crown does not provide a millionaire with a pleasure at all comparable to that which it procures for a beggar. Buffon, who was no economist, but a very clever man, noticed this long ago: "The poor man's half-crown," he said, "that is going to pay for something of prime necessity, and the half-crown that fills up

<sup>1</sup> This is like the well-known mathematical series which go on diminishing until they reach zero and then begin to increase below zero, but as minus quantities. The different degrees of want are the positive terms of the series; the different degrees of satiety, down to disgust, are the negative terms; between the two is zero, which is the point of indifference.

the money-bag of the rich financier, are two identical objects in the eyes of a mathematician; but, from the moral point of view, one of them is worth a sovereign and the other is not worth a farthing." Of course it is only to its rich owner that the half-crown is not worth a farthing, for its purchasing power in the market remains the same.

(3) Wants are *competitive*, which means that one want can very often be developed only at the expense of other wants which it abolishes or absorbs; and they are very often *interchangeable*, so that one can easily take the place of another, like the parts of a bicycle or a gun. Just as "one nail drives out another," according to the proverb, so one want drives out another. That fact is the basis of a very important economic law called the *law of substitution*. It has been noticed often and in various countries that the popularity of the bicycle and the motor-car has done considerable damage not only to the trade in riding-horses and to coach-building, but even — most unexpectedly — to the manufacture of pianos!<sup>1</sup>

This law of substitution is of capital importance because it operates as a kind of safety-valve for the consumer, when the satisfaction of one want becomes too burdensome by ordinary means.

Morality and hygiene make use of this law when they endeavour to replace lower and more brutal wants by those of a higher order. Thus, to combat drunkenness, for example, temperance societies have found nothing better than opening "temperance restaurants" in which an effort is made to accustom people to drink tea or coffee. Notice also that a material want may be replaced by an intellectual want — the public-house, for example, giving way to the reading-room — or by a moral want, as when, for instance, a workman goes without a drink in order to pay his subscription to a provident fund, a trade union, or a political association.

(4) Wants are *complementary*: they generally go in company, and cannot easily be satisfied separately. What is the use of an odd shoe or an odd glove? What use is a carriage without a horse, or a motor-car without petrol? A good overcoat is not sufficient to keep out the cold: we must also have had a good dinner. The

<sup>1</sup> It is important to distinguish between the substitution of *one want for another want*, and the substitution of *one object for another object* for the satisfaction of the same want — what is called a *succedaneum*. The latter kind of substitution is less interesting. The recent war furnished numberless examples, and these on the largest scale: bread made of rye or even potatoes instead of wheat, nettles substituted for cotton as a textile fabric, cellulose used instead of cotton for explosives, saccharine in place of sugar, and all the *ersatz* commodities that enabled Germany to defy the blockade for so long.

want of food, at least among civilized men, involves the want of a large number of other things, such as tables, chairs, table-cloths, napkins, plates, glasses, knives, and forks. To obtain the maximum of satisfaction it even needs to be associated — as it is in banquets — with certain aesthetic forms of enjoyment, such as flowers, lights, glittering table appointments, beautiful clothes, and music.

(5) All wants are appeased or even extinguished for the time being when they are satisfied; but they are not long in coming to life again, and the more frequently and regularly they have been satisfied, the more peremptory do they become. And when a want has many times found the same means of satisfaction it tends to become fixed as a *habit*, which means that it can no longer submit to interruption without physiological suffering on the part of the organism, however artificial the want may be: "Habit," as the saying goes, "is second nature." This law is also of great importance, especially in relation to the question of wages. It sets the level of existence, the *standard of life*, and this standard is not easily lowered. There was a time when workmen wore neither shirts nor shoes, when they had no coffee or tobacco, when they ate neither meat nor wheaten bread; but to-day these wants are so deep-seated and ingrained that a workman would undoubtedly perish if he could no longer satisfy them and was suddenly reduced to the condition of his social equals in the days of Alfred the Great.

If we add, finally, that a habit which has been transmitted from generation to generation tends in time to become established through *heredity*, and that our senses are becoming every day more subtle and exacting, we shall understand the despotic power that may eventually be acquired by a want that originally seemed most futile and insignificant.

But if it is true that every want becomes intensified in proportion to its power of finding satisfaction, it is equally true that it disappears when it finds no means of satisfaction. It is like a fire which increases when it is supplied with fuel, and goes out when it gets none. No doubt a physiological and essential want cannot be suppressed; if it cannot obtain satisfaction from one object it will have to find another, on pain of death. But in the case of artificial and harmful wants, like the want of alcohol or opium, the best and almost the only means of suppressing them is to refuse to satisfy them at all.

## II. WEALTH

Our wants and desires necessarily relate to an object outside ourselves. The remarkable property possessed by certain objects of satisfying one or other of our wants and supporting our life or increasing our well-being, is called *utility* (from the Latin word *uti*, meaning to use). And every object which has this property is called *wealth*, independently of the amount of value it possesses: a glass of water is wealth in the economic sense of the word.<sup>1</sup>

Of course not *all* the things around us — animals, vegetables, and unorganized bodies — possess this property. Three conditions are requisite for an object to be useful: —

(1) There must be some relation between the qualities possessed by the object and one of our wants. Bread is useful because, on the one hand, we need food, and because, on the other hand, corn contains exactly the elements best suited for our nourishment. The diamond is much sought after because it is a part of our nature, as also of that of certain animals, to take delight in looking at brilliant objects; and because the diamond possesses the property of glittering with incomparable splendour, owing to its refractive power, which is superior to that of any other known body.

It should be carefully observed that of the two terms in this relation it is the man and not the object that is by far the most important to the economist. One might be inclined to believe the contrary — to think that the anticipated satisfaction depends on the properties of things; that the utility of gold is of the same nature as its weight or its lustre or its rustlessness; that utility attaches to the objects themselves, like a quality which appeals to the senses. But this is not so; and this is proved by the fact that this correspondence between an object and our wants is not always due to nature — it may be due to social usages, to fashion, or to our own beliefs. For hundreds of years, and at the present day in some countries, men have attributed wonderful properties to certain more or less authentic relics, which have therefore been regarded as incomparable wealth. There are many mineral waters and patent medicines that are in great demand, although their curative powers are exceedingly doubtful. Then think of all the costumes that are no longer worn, the books that are no longer read, the pictures that are no longer admired, the money that is out of circulation, the

<sup>1</sup> Since the word *wealth* in everyday language means something of great value, it would perhaps be better to use the term *goods* instead, meaning "that which is good," like *bien* in French and *bona* in Latin.

remedies that no longer cure . . . what a long list we could make of all the items of wealth whose utility has been as fleeting and short-lived as the wants that gave rise to it! Yet, even so, if the desire of the collector—the keenest of all desires—should chance to fix on this dead wealth, it would acquire a new life and soon possess a far greater value than it had during its first existence.

According to scientists and hygienic experts, alcoholic drinks have none of the virtues attributed to them: they furnish neither strength nor warmth. But what of that? Millions of men in all countries unfortunately believe that they possess these utilities, and that suffices to make them constitute wealth, and even such wealth as is estimated in millions of pounds and from which governments themselves draw part of their revenues.

(2) The mere existence of this relation between an object and one of our wants is not sufficient: we must be *aware* of it, or, if it is an imaginary one, as in the examples just given, we must *believe* in it. One of Aristotle's maxims, often repeated in the Middle Ages, was: *nil amatum nisi precognitum*, "nothing can be loved (or desired) except it be first recognized."

There is probably not a single thing in the wide world around us that could not be used to satisfy our needs, and consequently to increase our wealth, if man's knowledge could see far enough. But so long as they are unknown they remain as useless as the fertile lands or precious metals discovered by astronomers, with the aid of telescopes and spectrum analysis, on Mars and Venus. In fact there is only a very small number of bodies that are classed as useful. For example, out of some hundreds of thousands of species included in the animal kingdom, barely two hundred are utilized to furnish us with food, with labour, and even with recreation. And of plants and minerals the proportion is infinitely smaller still.

However, the number of utilities increases rapidly with the progress of science. Coal is one of the most remarkable examples. Its employment first as domestic fuel, and then as a source of power, is of quite recent date, and it was still more recently that we discovered how to draw out of these black lumps, as out of a conjuror's hat, first light, in the form of gas, then all the colours, all the perfumes, all the chemist's drugs, and finally nearly all the explosives.

(3) But it is not enough even for us to know that an object has the power of satisfying our wants: we must also be able to apply it to that purpose. It must not only be recognized as useful: it must be *capable of being utilized*. And this is not the case with everything. There are many forests that rot on the ground because they

cannot be exploited. Many rivers, even in France, are full of gold which cannot be economically extracted. There are vast forces lying hidden in the ebb and flow of seas, in the streams of the countryside, in molecular attraction; but we can make no use of them, at any rate in the present state of our knowledge. We know well enough that there is aluminium in the clay that makes the mud of our streets, but we have not found out how to extract it. And it is only quite recently that we have succeeded in extracting nitrogen from the inexhaustible reservoir of the air.

Now does this property of satisfying our wants and giving us enjoyment belong only to *things* (what the Roman lawyers called *res*)? Surely it belongs also to *acts* — to the doings of our fellow men, many of whom undoubtedly provide us with much enjoyment and are even *useful* to us in the economic sense of satisfying our wants directly, without the intervention of any material wealth. Thus the doctor gives us health; the teacher, knowledge; the judge, justice; the policeman, security; the writer and the artist, the highest and purest forms of enjoyment; and the servant carries out our orders. It is man himself who is most useful to man. It cannot be doubted, either, that the satisfaction thus obtained is equal or even superior to that which we get from things, and that we value it just as highly or more highly, since we pay heavily for it if necessary. In this connexion, it is true, we are more inclined to speak of *service* than of *utility*. But that matters little; we are always saying of some object or other — a bicycle, a pocket-knife, or a fountain pen — that “it renders us good service,” just as, conversely, we say to our friends, “please make use of me,” — a mere polite formula, no doubt, but one that is scientifically quite correct. And we might even say that things only render us services, just as persons do: what is called their “utility” is the same thing as “service.”<sup>1</sup>

But if men desire wealth so much it is not only because it enables them to satisfy their wants or their whims; it is also because it gives them power over men and things. I am not speaking of the social and political influence that money gives, but of economic power — notably the power of commanding at one's pleasure the labour of hundreds and thousands of men. And for this there is no need to be a captain of industry: every capitalist exerts this power indirectly.

<sup>1</sup> At the same time it is a little awkward to describe a service as “wealth”: that is why there used to be so much discussion of the question whether “immaterial wealth” can exist.



Such, then, are the two aspects under which wealth appears: *enjoyment-wealth* and *power-wealth*.

The possibility of enjoyment cannot exceed a certain maximum, so that if wealth yielded only enjoyment the pursuit of wealth would also be limited. It is the other aspect of wealth, the desire for command over men and things, that drives human effort beyond all assignable limits, and that has caused the rise of those American millionaires, so rightly named the "kings" of cotton, steel, or oil. Nor should it be overlooked that this desire is a nobler one than the other, though socially it may become more dangerous.

Enjoyment-wealth grows and is spent in the form of *income*; and *power-wealth* is realized in the form of capital. That is why modern socialism aims at abolishing wealth as an instrument of man's power over his fellows, while leaving it in existence as a means of enjoyment and an object of consumption. But it is not easy to separate these two functions.

### III. THE DIFFERENCE BETWEEN WEALTH AND VALUE

In ordinary speech the words "wealth" and "value" are synonymous. But in political economy they bear meanings which are by no means identical, and in some respects even opposite to each other.

(1) The idea of wealth implies a relation between *man and things*, whereas value implies a *relation between things* — a relation that takes actual form in the shape of exchange, or if that is impossible, as when things are too far apart in space or time, in the shape of a statement of value.

For all good things are not equally objects of desire. We set up an order or classification among them, just as there are dishes at our table that we like best, and favourite books in our libraries. Even Robinson Crusoe on his island drew up a comparative scale of the objects he possessed, and he had to apply it when it came to taking things from the wreck, by starting with those by which he set most store.

Value, then, is a *relative* notion, like size and weight. If there were only one object in the world, it could not be called large or small, nor could we say that it had much or little value.

That is what distinguishes value from utility, for the latter exists by itself, just like the want that it satisfies. When I say that such and such a thing — a gun or a horse — *is useful*, I make a statement

that is perfectly clear and definite. But if I say that a pearl *is worth*, the statement is incomplete and even meaningless: *what* is it worth? To make it intelligible we must add that it is worth so much money, or, if we are among savages, so many pieces of calico, or so many elephant tusks; that is to say, we must compare it with some other kind of wealth.

It is true that in everyday speech we say that such and such an object has "great value," without adding anything else. But the other term of the comparison is understood, though it is not expressed. We mean that the object has great value relatively to the unit of money, in which case we compare it to that other value called a coin; or else we mean that it occupies a high rank among objects of wealth, in which case we are comparing it with all other kinds of wealth considered collectively. Similarly, when we say that platinum is very heavy, without expressing any comparison, we mean either that it has a high specific gravity, comparing it with the weight of water, or else that it occupies a high place in a list of all known bodies arranged according to weight.

From this relative character of value it follows that a *simultaneous* rise or fall of values is impossible: such a statement has no meaning.

Whenever we exchange or compare two things, the value of one can only be increased in proportion as the value of the other diminishes. Thus understood, the law is self-evident; it might even be called tautologous, for the exchange value of one thing is nothing but the amount of something else that it enables us to obtain. So to say that one is worth more is to say that the other is worth less. Thus when money, which enables us to obtain everything else, falls in value, we must give more of it, when we make a purchase, to obtain any other kind of goods; which is the same thing as saying that a fall in the value of money means a general rise in prices, and conversely.

It is the same with value as with weight: the relative weights of two things cannot both change at the same time, for this would mean that the two scales of the balance would rise or fall simultaneously.

(2) The idea of wealth is necessarily bound up with that of *abundance*: the more goods a man has the wealthier he is. But the idea of value, on the other hand, is bound up with that of *scarcity* — of limitation of quantity.<sup>1</sup> Yet does not each one of us measure his

<sup>1</sup> Ricardo was the first to call attention to this point in his chapter on the distinctive properties of wealth and value. For him the essential difference lay in the fact that value depends on difficulty of production, and wealth on ease of production.

wealth by the sum total of the values he possesses in his pocket-book or in the form of fixed property? Undoubtedly; but we know too that if the objects we possess are everywhere too abundant, their value becomes depreciated and our wealth diminishes. Consequently, if we have it in our power to make these things scarce on the market we shall not fail to do so. That law was known and acted upon by the spice-merchants of the Dutch Indies when they destroyed as much of the crop as they thought excessive; and it is to-day the reason for the existence of those associations of manufacturers, called Trusts or Cartels, which limit production on pain of a fine.

Suppose, on the other hand—to take an imaginary case—that through the progress of science and industry, all objects become as abundant as the water of the brooks or the sand of the seashore, so that men can satisfy their wants by merely drawing upon them at will. In this case it is obvious that everything will have lost all exchange value, for there can be no exchange of objects which are free to all. They will have neither more nor less value than the water of the brooks or the grains of sand themselves. And since the sum of many zeros can never make anything but zero, there will no longer be any *individual* value or wealth. In this utopian world there will be no rich men any longer, for all men will be equal in face of the valuelessness of things, just as the king and the beggar are equal before the light of the sun. But *real* wealth, in those circumstances, would be at a maximum.<sup>1</sup>

#### IV. WHAT IS VALUE?

We have just said that the word “value” implies a relation, a comparison, a preference. But why is it that one thing is worth more than another? Simple as it seems, this question has been the torment of economists for hundreds of years.

The innumerable answers that have been given to it may be grouped into two great theories which we will examine in turn: the *utility* theory, and the *labour* theory.

<sup>1</sup> J. B. Say said: “Since wealth is composed of the value of things possessed, how can a nation be wealthiest when things are at the lowest price?” And Proudhon, in his *Contradictions économiques*, defied “any serious economist” to answer this poser. But the answer is that the definition underlying the argument is inaccurate: though it is true of an individual that his wealth is made up of the sum of the values he possesses, it is not true of a nation.

1. *The Utility Theory of Value*

The first answer that suggests itself to the mind is that things ought to be more or less valuable according as they more or less completely satisfy our wants — in other words, according as they are more or less useful.

But we must be careful to notice at the outset that this kind of utility cannot be the same as utility in the common acceptance of the word. The word *useful* implies a moral judgment, the suitability of the object for satisfying certain wants which are considered good; it is generally opposed, on the one hand, to what is *harmful*, and, on the other hand, to what is *superfluous*. Thus we place the utility of corn and coal and iron in the front rank, but we object to speaking of the "utility" of pearls or lace or some old postage-stamp. Yet the value of these latter objects is far higher than that of the former. Value, therefore, has no connexion with utility in the moral sense. Consequently, in its economic acceptance the term "utility" can only mean the property of satisfying any want or desire whatever, and this utility can only be measured by the intensity of that want or desire.

To avoid this perpetual misunderstanding it would be as well to replace the word "utility" by some other term. The older economists called it *value in use*, as opposed to value in exchange, or exchange value. This name described it well, and it is a pity, perhaps, that it has been abandoned. In the first edition of this book (1883) we proposed the term *desirability*, which has the double advantage of not prejudging the character of the desire as moral or immoral, reasonable or unreasonable,<sup>1</sup> and of clearly marking the *subjective* character of value, whereas the term *utility* inevitably suggests the idea of a quality inherent in the object, like hardness, elasticity, etc. And this is not the case; value is not created by nature.

Let us go a step further. Even with this rectification the term "utility" seems insufficient to give us the key to the riddle, for while we can recognize that a diamond has great utility or great desirability for a fashionable lady, it is obvious that water has also, not only in the Sahara, but for every one of us at all times. "Ἄριστον μὲν ὕδωρ," said the poet Pindar — "water is the best of all things" — and yet its value is generally *nil*. It is much the same with bread:

<sup>1</sup> M. Vilfredo Pareto has proposed the term *ophelimity*, a Greek word which expresses a "relation of suitability" between an object and a desire. But the word has had little more success than the one that we had proposed.

it would certainly be a great privation for every Englishman to eat his meals without bread; then how are we to explain the very small value of this object also?

That is why another conception has had to be introduced to explain value — the idea of *scarcity*. This, by itself, would not suffice to create value, for however rare a thing might be — even if it were unique — it is clear that it would have no value if it were of no use. Cherries are as scarce at the end of the season as at the beginning: nevertheless they acquire no value from the scarcity at the end of the season, because they are only desired when they are early. If I have written a tragedy, my manuscript is unique, which is the highest degree of scarcity; but it will not thereby acquire any value.<sup>1</sup>

It might be thought, however, that scarcity in itself creates value, if we think of the many instances of enormous prices being paid for such things as postage-stamps whose only interest lies in their being the only ones of their kind. Yet, even in these cases, it is very clear that the value depends solely on the desire of the collector who wants to have a more complete set of stamps than his rivals. The difficulty of filling gaps, and the rarity of the object, act simply as obstacles in the way of desire, like a dam thrown across a river, whose removal makes the water flow more strongly than before.<sup>2</sup>

But if each of these two elements is insufficient by itself, it seems that they are sufficient when combined. We thus arrive at this first explanation: that value is *scarce utility*. And some eminent economists think that we can leave it at that.

But nowadays economists of the psychological school, and especially of the school that has become famous as the Austrian school, are no longer content with this explanation. They have set themselves to dig a little deeper into this concept of value, and have come to the conclusion that utility is amply sufficient to explain value, without the necessity of adding anything else, provided only that the word "utility" is properly defined.

To understand this point, let us return to that old stumbling-block, the example of water. Water is not only useful in the ordinary sense of the word; it is also useful in the sense of "desirable." Then why has it no value?

<sup>1</sup> Yet utility, in the ordinary sense of the word, *i.e.* in the sense of *quality*, does determine value in the case of products of the same kind. Thus the prices in a shop of cloth, or fruit, or jewels, or motor-cars is fixed according to their quality, which means that, other things being equal, we prefer whatever will best satisfy our wants.

<sup>2</sup> A Mauritius postage-stamp issued in 1847 has fetched, at different sales, as much as £1200 and £1400. Why this fabulous price? Simply because the engraver had made a mistake, so that the stamp bore the words *Post Office* instead of *Post Paid*.

We must reply that the objection is groundless, for these reasons: —

(1) In the first place, it is not true that water has no monetary value. When used for irrigation or as a motive power it has value — sometimes even a very considerable one. It even has a certain value as drinking water in all towns. So it is only in reference to the jug of water on our table that we are justified in saying that water has no value: that jug, it is true, has little or no value. Now can we also say that this jug of water is *very desirable*? By no means; for if it chanced to be upset I should only have to get it filled again at the tap. A thing that can be replaced at will can never be very keenly desired — one can neither be much grieved by its absence nor rejoice much in possessing it.

Consequently, the apparent contradiction between the extreme usefulness of water and its lack of value does not really exist: it results solely from a confusion of ideas. When we speak of the great utility of water, we are thinking of water *in general*, as an indispensable factor in the life of the world; when we say that water has no value, we are thinking of the small quantity necessary to meet our individual requirements.

It is the same with bread. When we say that bread is very useful, we are thinking of the utility of bread in general to the white races of the world: that is indeed great, but so too is its total value — some £800,000,000 at least before the war, and perhaps five times as much to-day. But, as a consumer, I have no concern with the world's wheat harvest: my wants are limited to my daily bread. Now this small quantity cannot very greatly excite my desire, for I can easily replace it, though not quite so easily as I can replace the water; so the value of wheat is considerably greater than that of water.

The utility that we have to consider, then, in seeking the basis of value, is never the total utility of an object, but the utility of the small fraction that is necessary to satisfy our wants.

(2) Not only so, but we must further observe that each of these fractions has a very different degree of utility. It is important, therefore, to know which one we have in view — which of the fractions it is whose utility determines value.

Let us suppose that my daily supply of water is contained in a series of numbered buckets, arranged in a row. Bucket No. 1 has the highest degree of utility for me, for I shall use it to quench my thirst; bucket No. 2 has also a great utility, though not so great as the first, for I shall use it for cooking; bucket No. 3 has still less utility, for I shall use it for washing; No. 4 is for my horse to drink; No. 5 to water my dahlias; No. 6 to wash my kitchen floor. Bucket

When it has no value  
its utility is not  
very great.

No. 7 will be of no use to me at all, so I shall not take the trouble to fill it any longer. If some evil spirit, like the one conjured up by the "clumsy wizard" of a German legend, were to amuse itself by bringing me a 10th or a 20th or a 100th bucket, till I was drowned, it is obvious that these would be not only not useful but positively *harmful*. We cannot therefore say that these buckets of water are either useful or useless, but that they present a complete scale of *diminishing utilities*, ranging from infinity to zero, and even lower.

Let us stop and consider bucket No. 6, the last one which had any utility at all. Its utility was small, but none the less it was worth the trouble of drawing this bucketful from the well. Now we are able to affirm — and this is the most interesting point in the argument — that none of the other buckets can have a greater value than that determined by *the utility of this last one*. The reason is this: that, whatever happens, it is by the acquisition or the loss of this last unit that we measure our enjoyment or our privation. Suppose that bucket No. 1, which I was going to drink from, gets accidentally upset. Shall I weep and lament and say that I must die of thirst? That would be the height of lunacy, of course. It is obvious that I should not have to go without my drinking-water on that account: I should only have to sacrifice another bucketful to make up for it. Which bucket? Obviously the one that is least useful, namely, the 6th — the last one that I filled. That is why it is the last bucket that determines the value of all the rest. And as the value of this last bucket is extremely small — at any rate in our country: it would be different in an African village — that is why the value of water is extremely small. Its *final utility* is infinitesimal.

Now let us leave this numbering of buckets, which we adopted only for purposes of demonstration and which is no longer of any use, for it is evident that all the buckets are identical and interchangeable. Consequently they must all have *the same value*, and this value is precisely that which answers to the last want that is satisfied or frustrated, as the case may be.

To sum up this argument: —

Value is determined not by total utility, but only by the utility of that portion of the object of which we are in need. This utility is not the same for each unit that we possess; and it goes on diminishing, because the intensity of our want goes on diminishing as the number of units that we possess increases. Now it is the utility of the last unit possessed — the least useful portion, therefore, for

it corresponds to the last want satisfied — which determines and limits the utility of all the others. That is why it is called *final utility*.<sup>1</sup>

This theory is based upon the law of satiety that we explained in connection with wants (see p. 35). We saw that all wants and desires cease as soon as they are satisfied, and even change to repulsion for the object that they but lately coveted. Yet it may be said, surely, that water remains useful even after we have quenched our thirst? Yes, it is useful in the physical sense that it retains thirst-quenching properties, but from an economic point of view it is no longer an object of desire to me or to anyone, for we all have enough of it, or even too much.

This theory is admirable as an accurate and subtle psychological analysis of human wants and their varying intensity.<sup>2</sup> Yet it only revives an older doctrine — that of Senior and the elder Walras in particular — which attributed value to scarcity, with the understanding that the scarcity applied to a desirable object, for otherwise it could not create any value at all (see p. 45 above). In reality, therefore, final utility is only the learned name for *scarce utility*. But the merit of the theory lies in the reconciliation — it has effected between the two conceptions of utility and scarcity, by showing that they are inseparable, and that utility, in the economic sense of the word, is necessarily a "function," in the mathematical sense, of the quantity of the object in question.

It must nevertheless be admitted that a certain amount of verbal

<sup>1</sup> *Final utility* must therefore be carefully distinguished from *total utility*. The latter consists of the sum of the utilities of all the buckets of water, and is consequently always much greater than the utility of the last bucket. That is why the total utility of *water* is enormous, though the utility of a *bucket of water* is small.

The term *final* is not altogether a satisfactory one. It has been criticized for implying the idea of a diminishing series — a scheme of numbered units which is useful for demonstration purposes but does not correspond to reality. Some economists prefer the term *marginal utility*, as the Germans call it. "*Liminal*" utility might be better still.

<sup>2</sup> But it was not till the middle of the nineteenth century that the theory of final utility was first formulated. This was by a French mining engineer, Dupuit (1844), who was followed by a German named Gossen (1854). But the work of these two remained quite unknown till the theory was set up anew (1871-1873) by Jevons in England, John Clark in the United States, Walras in Switzerland, and Karl Menger in Austria. The fact that these authors reached practically the same conclusions, simultaneously and independently, obviously creates a presumption in favour of the truth of the theory. It has found its chief exponents in Austria — not only Menger, but Boehm-Bawerk and Wieser after him.

be. etc., etc., etc.



artifice is involved in thus reducing very complex elements to a single idea, and expressing them by a compound word. For final utility implies not only scarcity but difficulty of acquisition as well,<sup>1</sup> since scarcity or limitation of quantity is hardly ever an absolute fact: under modern economic conditions it is only a relative one. There is nothing in the world whose quantity is so rigidly fixed that we cannot increase it if we take enough trouble. This applies even to natural products, and still more, of course, to the products of human industry. The reason that diamonds are rare is not that nature has put into circulation a strictly limited number and then broken the mould: it is simply that a great deal of trouble or a great deal of luck is requisite to find them, and consequently the quantity in existence can only be increased with difficulty. When we say that chronometers are rare we do not mean that the world contains an insufficient number of them to meet our needs, but simply that the manufacture of a good chronometer takes a considerable time and demands special skill, so that the quantity of them is limited by the time and labour available. It would even be a bold thing to assert that the number of paintings by Raphael is absolutely fixed: for it is not impossible that some one may some day discover others of which we know nothing, in some old church or barn.

In our explanation of value, therefore, even when we base it upon utility, we cannot ignore the greater or smaller degree of difficulty involved in the production of wealth, and so true is this that a mere *possibility*, though not yet realized in practice — such as the discovery of a method of crystallizing carbon into diamonds — might be quite sufficient to bring about a lowering of value, even before it was industrially applied.

On the other hand, this theory seems better suited to a Robinson Crusoe than to men living in society and in a world of exchange. The final utility of a pair of glasses is enormous for me if I am so shortsighted that I can neither read nor walk without them. But as I know I can always replace them at any optician's if I chance to break them, their final utility cannot be greater than the four or five shillings I should have to pay for them, a sum which represents simply their cost of production.

<sup>1</sup> Some economists have held that these words, *difficulty of acquisition*, offer a complete and satisfactory explanation of value — on condition, however, that utility is understood; for nothing could be more difficult than to recover a pebble thrown to the bottom of the Atlantic, but this confers no value upon it.

## 2. *The Labour Theory of Value*

This theory has held a prominent place in the history of economic doctrines. Expounded for the first time by Adam Smith, though in a somewhat uncertain form, and then vigorously asserted by Ricardo, it has been accepted by economists of the most opposite schools, from optimists like Bastiat to socialists like Rodbertus and Karl Marx.

Every object, said Proudhon, *is worth what it costs*. And what it costs is not the money we pay for it, for purchase is only the transfer of a thing that already exists: it is the labour that has been expended in producing it.<sup>1</sup>

At first sight this theory looks very attractive. To begin with, it gives a precise, objective, and easily measured notion as the foundation of value. The mind is satisfied by the statement that such and such an object — a watch, for instance — is worth a hundred times as much as a loaf of bread because it represents a hundred times as many hours of work. The explanation is plausible: in any case it can be verified by enquiry; whereas to say that the watch is worth a hundred times as much as the loaf because its utility is a hundred times as great, is to make a comparative estimate which tells us nothing definite. Nor is this estimate made any clearer by substituting "final utility" or "desirability" for the term "utility."

Secondly, this theory answers better to the idea of justice, because it sets up a moral element — labour — as the foundation of value. And it is on this account particularly that it has attracted so many generous-minded men. Could we but succeed in proving that the value of everything owned is determined by the labour it has cost, then the problem of allotting to every man a value equal to the produce of his labour would be greatly simplified, and it would be easier to establish the social organization firmly upon a principle of justice.

At the same time it must be observed that this explanation of value has been employed for two exactly opposite purposes. The upholders of the existing economic order have used it to prove that

<sup>1</sup> We often hear it said also that *value* is determined by the cost of production, meaning by that *the sum of the prices paid for the various productive services* — wages, interest, rent, etc., — and that is how the manufacturer understands it. But in this sense the cost of production affords no explanation of value, for these constituent elements of the cost price are themselves only values, so that we are only explaining one value by means of others. All that this explanation does is to affirm a necessary relation between the value of the product and the sum of the values of its constituent elements.

all property, including the ownership of land and of capital, is in conformity with social justice, since all value is founded upon labour. But the socialists, on the other hand, have used it to prove that property is usually a spoliation of the workers, since for the most part the workers are not owners and the owners are not workers. Therefore under the existing régime, they say, property and value are indeed founded upon labour, but upon *other people's labour*, and not that of the owner. If then we wish every one to own the value created by *his own* labour, we must overturn the existing order of things.

But these considerations, whether justificatory or critical, must count for nothing in an explanation of value. There only remains then to examine the economic argument that all value involves a certain amount of labour, and that the value is measured by the quantity of that labour.

(1) Observe in the first place that this theory cannot deny that utility — the property of satisfying any of man's wants or desires — is still the fundamental condition of all value. It would be absurd, indeed, to imagine that anything could have any value at all if it was of no use, no matter how much labour it cost. But, it is said, if utility is the *condition* of value, it is not its *cause*. The utility of things is what differentiates them from each other: labour is what gives them all the common characteristic of being valuable, from an economic point of view.

But is this true of *all* things? Certainly not; there are innumerable things which have value of their own without having cost any labour, simply because they are useful and sought after. Such are mineral springs, oil springs, guano deposited by sea-birds, those sandy beaches at the mouth of the Rhône, untilled except by the sea wind, which fetch high prices for planting vineyards, and building sites in Park Lane or Fifth Avenue.

(2) Notice in the second place that if the value of a thing is determined by the labour employed in its production, then the value of everything is *necessarily unchangeable*, because the labour worked into it is past labour, and what is past cannot be changed — as Lady Macbeth said, "What's done, is done." Now every one knows, on the other hand, that the value of an object varies unceasingly from time to time, simply because it depends upon demand, or desire, and it is quite obvious that these variations are entirely independent of the labour expended in producing the object originally. Past labour is dead, whereas value is living.

To meet this argument it is replied that what makes value is not

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the past labour that was employed in producing the object in question, but the similar, present labour necessary under existing social conditions to replace the object: in other words, the labour of *reproducing* it; or else, as Karl Marx said, the *social labour* necessary for its production, which is measured by the average number of hours actually necessary to produce it.

Very well; but it remains none the less true that this average social labour changes but slowly with the progress of industry, and cannot therefore explain the frequent, often daily variations in the value of things, resulting from changes in supply and demand upon the market. We must say, then, that there are two kinds of value: *normal* value, determined by the labour, or rather the cost, of production; and *current* value, determined by supply and demand, that is to say, by scarcity and utility. That is how it was put by John Stuart Mill, who compared normal value to the level of the sea, and market value to the movement of the waves, constantly upsetting this level. But even so it must be recognized that this "level of the sea" is only an abstraction that is never perfectly realized; that therefore the value based upon labour is similarly only an abstract conception; and that in practice it is value based upon utility that we must take into account.

Nor is it only in fleeting variations and oscillations around a centre of gravity that current value shows itself independent of labour cost; in many cases the changes take the shape of definite divergences. Such is the case with the wine that improves in quality and increases in value as it lies in the cellar, while no change has taken place in the labour of the vine-grower who gathered the grapes or even in the social labour employed in making the wine. Such also is the case with land and houses, which may acquire increased value solely on account of their situation — that is to say, their utility — even though their original value was due to the labour of clearing the land or building the houses. On this very phenomenon is founded the celebrated economic law of *rent*. It implies, as we shall see, an excess in the selling price of an object over its labour cost. And rent exists everywhere, to a greater or less degree.

(3) Finally, this theory that value is nothing but labour seems to suggest a false idea of value by materializing it in its object, regarding it, as Karl Marx did, as "crystallized labour." Now value, as changeable as fashion, is totally unlike the unchangeable crystal. Value is only a beam of light projected on things by our desire, and as the revolving beam of this lighthouse turns hither and thither it makes the objects in the world around us leap out of the shad-

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reproduction of the object is the labour necessary to produce it

ows, to disappear again into the darkness when it is turned elsewhere: they have had value, and now they have it no longer.

We can see, then, that this labour theory of value is surrounded on all sides by the utility theory, and cannot get free from it. Must it therefore be dismissed in favour of its sister theory? No; for we have already seen that the utility theory is itself insufficient without a reference to the causes which limit the quantity of the objects in question, and of these causes the principal one is labour.

Let us ask ourselves some questions. Why do we attach a certain value to an object? Why is such and such a thing dear to us?<sup>1</sup> We can easily see, after a little consideration, that we can give two different and, in some respects, opposite replies: we can be attached to things either because of the *pleasure* we get from possessing them, or because of the *pain* that their acquisition has cost us. The deepest kind of love — maternal love — is itself made up of these two elements.

The isolated producer, say Robinson Crusoe on his island, certainly valued his canoe not only for the services it performed for him, but also for the enormous amount of labour that he had to put into the building of it, and which he would have had to undergo again to replace it if it had got wrecked.

Still more is this the case in a state of society in which almost all goods come to us by way of exchange, where each of us can only procure a thing by handing over something else, and where consequently every acquisition is coupled with a privation. As buyers and consumers we think especially of the pleasure we shall obtain from the object we wish to purchase: as sellers and producers we think particularly of the pain and expense that will eventually be necessary to replace the wealth that we are giving up.

Both theories, therefore, must be retained together as inseparable and complementary. No doubt the mind is generally better satisfied by a single cause, but here, where we are dealing with exchange value, it is inevitable that value should have two aspects and be double-faced, like Janus — one face turned towards the buyer, the other towards the seller — one face laughing, and the other weeping.

Yet of these two aspects of value the utility aspect seems to us predominant, for the simple reason that consumption is the end, and production only the means. In logic, as well as in practice, it is the consumer who gives his orders.

<sup>1</sup> It is not for nothing that we use the same word *dear* to express two different sentiments: a thing is *dear* both when we love it, and when it costs us much.

So far as it is possible to summarize such complex notions in a few words, we can say: —

*An object has more or less value according to the intensity of our desire for it.*

*The intensity of this desire depends on two things: (a) The enjoyment that the object is capable of giving to those who do not possess it; (b) the sacrifices that will be incurred by those who possess it, if they lose it and have to replace it.<sup>1</sup>*

## V. HOW VALUE IS MEASURED

To measure is to compare two quantities — length, volume, weight, etc. — and not only to compare them but to find out how many times one is contained in the other. For this purpose we have special instruments according to the nature of the quantity we wish to measure — foot-rule, scales, etc. Thus to measure the weights of two bodies — to weigh them — we put them into the scales of a balance. If the scales hang level it means that the weights of the two bodies are equal. If we have to put twice as much on one side as on the other, we say that one body weighs twice as much as the other.

We have also a means of measuring value — the method of *exchange*. Exchange is a kind of weighing, and it, too, is performed in a balance, only the balance is not visible; it exists in the inner consciousness of each of the exchanging parties. Each of them, in his inner consciousness, weighs what he has to give up against what he wants to obtain, and makes up his mind according as the one is lighter or heavier than the other. Moreover value, or at least exchange value, is itself a measuring, for, as we have seen, the idea of value implies a comparison or relation. This may be well expressed by saying that the exchange value of a thing is measured by *the quantity of other things for which it can be exchanged*, or, more shortly, by its *power of acquisition*.<sup>2</sup>

<sup>1</sup> This double law of value is already contained implicitly in the usual formula for the *law of supply and demand*. Taken in the narrow sense, this latter law expresses simply a relation between two quantities, the quantity offered and the quantity demanded (at a given price). But, in the wider sense, demand means the fact that things are more or less desired, *i.e.*, their final utility; and supply means the fact that they are more or less difficult to procure, *i.e.*, their cost of production.

<sup>2</sup> But we must beware of saying, as is too often said, that power of acquisition is what constitutes value. Our desire alone is what constitutes value. Power of acquisition is only an *effect* of value, just as the power of attraction of an electro-magnet is only an effect of the current that penetrates it.

If, therefore, in exchange for a hundredweight of wheat I can obtain five hundredweight of coal, I say that the value of wheat is five times as great as that of coal, or, conversely, that the value of coal is a fifth of the value of wheat; in other words, *the values of two kinds of goods are always in inverse proportion to the quantities exchanged*. The more of a thing we must give in exchange, the less is it worth, and the less we must give, the greater is its value.

It must be observed, however, that though exchange exactly measures the *relative* value of things — their differential values — it does not measure their *absolute* value — if, indeed, there is any meaning in this phrase; that is to say, it does not measure the causes which operate on value — the degree of intensity of our desires — any more than the balance measures weight, in the sense of gravity or terrestrial attraction. If we carry our balance up to the top of Mont Blanc, or even up to the moon, it will still imperturbably mark the same weight, although gravity has sensibly or enormously diminished. Similarly, exchange will indicate the same respective values, the same prices, even though there may have been considerable variations in the causes that determine these values, such as desirability, scarcity, cost of production, and so forth. For example, it might happen that the progress of human industry had facilitated the production of everything and thus created abundance; or, on the other hand, that the pressure of population had increased the demand for everything and created a shortage; but neither of these phenomena would be revealed by a variation in prices, for these causes would have operated simultaneously on both scales of the balance.

At the same time we have some instruments that enable us to recognize variations in gravity itself, and not merely in relative weight — the pendulum, for instance. Have we any similar instruments for measuring absolute value? It might be thought, perhaps, that money is just such an instrument; but no! for money, being itself only a form of value, is necessarily affected by the same causes as those which influence other forms of value. Money can no more reveal to us the causes of variation in value than the copper or brass weights that we use as standards can show us changes in gravity.

Money is only a *common measure* of all exchange values: it is nothing more than that, but that is a great deal.

To get a clear idea of size, or weight, or value, or any other quantitative notion, it is not enough to compare and measure things two by two: we must have a common measure for them all. Thus

to measure length men have taken for the second term of the comparison either some part of the human body (foot, ell, cubit), or a fixed fraction of the circumference of the earth (metre). Similarly to measure weight they have adopted for comparison a fixed weight of distilled water.

The object of a common measure is to enable us to compare *two things in different places*, which cannot, of course, be compared directly; or to compare *the same thing at different times*, and ascertain whether and how much it has varied. The metre allows us to compare the height of the Laplander with that of the Patagonian, and to measure how much taller the latter is than the former. If the same standard is in use, or at least known, some thousands of years hence, it will enable us to compare the men of that day with the men of our own day, and to find out whether human stature has degenerated.

To measure value, therefore, it is not enough to compare one value with another, as is done in the case of barter; it is needful also to take the value of some one fixed thing as the second term of the comparison. But what thing are we to choose?

Every race and every age has made use of a different measure. Homer says that the armour of Diomedes was worth a hundred oxen. A Japanese would have said, until quite recently, that it was worth so many hundredweight of rice. An African negro would put its value in yards of calico, and a Canadian trapper in fox-skins or otter-skins.

It is a remarkable fact, however, that the civilized races have almost all agreed in choosing as their measure of value, or standard, the value of the precious metals, gold, silver, and copper, but especially the first two. They have all made use of a little lump of gold or silver, called a sovereign, a franc, a mark, a dollar, a rouble, etc. To measure the value of any object whatever, they compare it with the value of that little weight of gold or silver that serves as the monetary unit; in other words, they see how many of these little ingots must be handed over in order to obtain the goods in question. If, for instance, ten ingots are required, the goods are said to be worth ten pounds or ten dollars or ten francs, as the case may be: that is their *price*.

The price of a thing is therefore the expression of the relation that exists between the value of the thing and the value of a certain weight of gold or silver. More briefly, it is its *value expressed in money*. And since money in every civilized land is the sole meas-



ure of value that is employed, the word "price" has come to be synonymous with the word "value."<sup>1</sup>

The reason why the precious metals have been chosen as a common measure of value is that they possess two particular properties that enable them to perform this function, if not perfectly, at least better than any other known object. These two properties are, first, very great value in small bulk, making them very *easy to transport*; second, a chemical immutability, which makes them *last almost indefinitely*. Thanks to the first of these properties the value of the precious metals varies less between one *place* and another than that of anything else; thanks to the second, it varies less between one *year* and another. And this double invariability in space and time is the essential condition of every good standard of measurement. We shall see later on however, that when we take account of long periods of time—not even as much as several centuries, but only one generation—this invariability is illusory. (See the section on "The History of Money," Book II, Chapter II.)

Now can we find a better measure of value than the precious metals? Several have been proposed, the principal one being *wheat*. This seems at first sight an astonishing choice, for if we consider the value of this commodity in different places or at different times we find that there are few kinds of goods whose fluctuations of value are more marked. At a given time a bushel of wheat may sell for 6s. in France, 4s. 6d. in London, and even for a shilling in certain parts of Siberia; and from year to year, according as circumstances are good or bad, the value may also vary considerably. At the moment of writing (July 1922) the price of a bushel of wheat in England is about 7s., whereas in France last year it was about 40 francs.

To this it is replied that though the value of wheat is incomparably more variable than that of the precious metals when differences of place or only short intervals of time are considered, yet it is far more stable when longer periods are concerned. Wheat satisfies a physiological need that is permanent and varies little. No other commodity possesses to the same degree the double characteristic (1) of being almost indispensable (at least in the countries where European civilization obtains) up to a certain limit, determined by the quantity necessary to nourish a man, and (2) of being almost entirely useless beyond this limit, since no one cares to consume more than his hunger demands. Hence, despite the great and sudden fluctuations in its production, owing to the vagaries of the

<sup>1</sup> See Book II, Chapter I.

weather, the law of supply and demand has a constant tendency to restore its value to the level determined by physiological need; it does this, moreover, with greater effectiveness whenever production has temporarily deviated from the position of equilibrium.

It is true, therefore, that wheat does offer, so far as variations in value are concerned, virtues and defects that are *precisely opposite* to those that characterize the precious metals. But this does not qualify it for the rôle of the money material: at the most it fits it to serve as a complementary and corrective measure of value. In fact it has often been used by statisticians as a good basis for estimating the cost of living at different periods of history.

Yet another common measure that has been proposed is the *minimum wage* of an unskilled workman, a manual labourer who earns just enough to live on. This proposal is based on the assumption that the amount necessary to keep a man alive is a fixed quantity. But we need only refer to what has been said concerning the wants of man (p. 34), and to what we shall say later on as to wages, to recognize that this assumption is entirely contrary to facts.

The wisest course after all, therefore, is to fall back upon money. But we need not be at all discouraged because this measure of value leaves much to be desired. Political economy is not the only science that has to put up with imperfect instruments. The most exact sciences are often faced by the same difficulty. I have heard the great astronomer, Leverrier, say that it was of little consequence to him whether his instruments were perfectly accurate, and that he did not even strive after it: the essential point was to know the amount of the error so that it could be corrected. And that is precisely what has to be done in the case of the monetary instrument: we must learn to discover, to measure, and to correct its variations.

It remains to find out how this is to be done.

## VI. HOW THE STANDARD OF VALUE IS CORRECTED — INDEX NUMBERS

Can we find any means of first *ascertaining* and then *correcting* the apparent variations that result from the variation of the standard of value? These are two distinct questions.

So far as the method of discovering variations in the value of money is concerned, it is obvious that we can only recognize them by comparison with the values of other objects. It will be no use looking at a sovereign, for it is plain that, by definition, this little

lump of gold is always worth a pound; it seems even absurd to say that it may be worth more or less than this.

Suppose, however, that a list were drawn up of the prices of all commodities, without exception, at a given time — say, for instance, on the eve of the war. Suppose that a new list is drawn up to-day, and that we find, on comparing the two lists, that the prices of all these commodities, *without exception*, have become four times as great. What conclusion are we compelled to draw?

Such a phenomenon as a *general and uniform rise of prices* admits of only two possible explanations. Either we must admit that things are what they seem to be, and that all commodities have undergone a general and identical rise in price; or else we must admit that the value of one thing — money — has fallen, no alteration having taken place in the value of other commodities. Between these two explanations, common sense permits of no hesitation, even for a moment. The second explanation is as simple and clear as the first is improbable because of the extraordinary combination of circumstances that it presupposes. Is it reasonable, indeed, to imagine the existence of some cause which can act simultaneously and uniformly on the value of objects which are entirely dissimilar as regards their utility, their quantity, and the method of their production? Such a cause would have to be capable of raising the price, at the same time and in the same proportion, of wool and coal, of wheat and diamonds, of paper and wine, of land and labour, and of all other objects having no connection whatever with each other.

To prefer this latter explanation would be every bit as unreasonable as to prefer the Ptolemaic system to the Copernican, as an explanation of the movement of the heavenly bodies. This motion likewise can be explained in two ways: either by the movement of the entire vault of the sky from East to West, or, quite simply, by the movement of our earth in the opposite direction. Even if all direct proof were wanting, we could not hesitate between these two explanations. How indeed could we imagine that bodies so different in their nature and so enormously far apart as the sun, the moon, the planets, the stars, and the nebulae, could travel thus, like soldiers on parade, keeping their proper ranks and their proper distances? The very same kind of reasoning is involved in the supposition that all prices can move uniformly; it can only be reasonably explained as a kind of optical illusion, an *apparent* movement, caused by a real but opposite movement in the value of money.<sup>1</sup>

<sup>1</sup> We can draw yet another comparison from the science of astronomy. It has been found that the stars, though falsely called "fixed," really move in very divergent

This, however, is only a supposition, and is never actually realized. As a matter of fact we never find a uniform and identical rise in the prices of all commodities. Thus at this very moment, although the rise of prices above the pre-war level hardly admits of any exception, yet it is very unequal and may vary from double to a hundredfold according to the commodity or the country. This means that there are *special* causes of price variation for each commodity. At the same time the universality of the rise in prices would be inexplicable without some *general* cause underlying the special and local causes; and this general cause can only be the depreciation of money.

It is for the purpose of isolating this general cause that economists nowadays draw up tables known as Index Numbers. As it would be impracticable to include *all* commodities in these lists, they choose the principal ones; and the choice of these is a very delicate matter. The compilation of Index Numbers is an art in itself, and many chapters would be needed to set out the methods followed and the difficulties to be overcome.

If we wish to estimate changes in the cost of living we must take retail prices, for these are the only ones that affect the consumer. But for estimating variations in the value of money we must discard retail prices, because they are too irregular and vary with local conditions: they do not admit of being "quoted." So we shall take only wholesale prices, such as are quoted on commercial exchanges and in customs returns, etc. But we must choose things of the most different kinds, so as to neutralize as far as possible the causes of variation which are special to particular classes, by allowing them to counteract each other.

Having chosen our commodities, we proceed to add up the prices for each of the years we are comparing. But, before doing this, we take the average of all the prices of each commodity. Then we make a further simplification, for instead of setting down the actual figures obtained by adding these average prices, we take 100 to represent the sum of the prices for the year that serves as the basis of the comparison, and express the price-totals for each of the other years as a ratio of this 100. Suppose, for example, that the sum of the prices is £1,380 for the year 1913, and £4,140 for the year

directions. In one part of the sky they seem to approach each other; in another part they seem to diverge; the constellation Hercules in particular seems to expand. To explain this general movement we have no resource but to regard it as an optical illusion produced by the movement of our solar system towards the constellation Hercules. Attempts have even been made to measure this movement.

1920; then instead of setting down these two figures, which convey nothing to the eye, we set down 100 and 300. By thus discarding the actual figures and putting a percentage instead, we can measure the rise in prices immediately: prices have trebled themselves, though this exact rise was not apparent before. This was very nearly the actual rise in prices in England between 1914 and 1920.<sup>1</sup>

<sup>1</sup> Here are the index numbers for prices in England, covering the period of the war, taken from the *Ministry of Labour Gazette*:

1914 (July) .....	100	1918 (July) .....	205
1915 " .....	125	1919 " .....	210
1916 " .....	150	1920 " .....	252
1917 " .....	180	1920 (Nov.) .....	276

Hence the prices of 1920 represented an advance on pre-war prices of 176%. Prices, therefore, nearly trebled themselves.

We can conclude from this that money underwent an enormous depreciation. (This is easily to be explained, as we shall see later on, by the excessive issue of paper money.) But it would not be accurate to assert that this depreciation was exactly in inverse proportion to the rise in prices, namely, about 64%.

Here, for purposes of comparison, are the index numbers of certain other countries, also for the end of 1920, a date which seems to have marked the highest point in prices:

France .....	424
Italy (Rome) .....	375
United States .....	175

In Russia and most of the eastern countries of Europe the rise is incalculable, the value of paper money having fallen almost to nothing.

[English index numbers have been substituted in this note for the French ones given by Professor Gide.]