34-5

5. On the other hand Empedocles ascribed to chance much of what happens by nature -- yet neither did he examine the nature of chance, nor state the reason why he used it.

Whether the natural philosophers of old believed in the reality of fortune or not, they should not have neglected to treat of it. If they did not acknowledge it as a real cause, then they should never have assigned anything to fortune as if it were nevertheless such a cause. For actually they did use it as a special kind of cause. Empedocles did as much when he maintained that the air is not always uniformly distributed in the higher region above the earth as if this were natural to it, but 'as it may chance'. For in explaining how the present status of the universe came about, he said that, while strife separated the elements, the air just happened to gather itself at that place and from thence on it continued and will go on to do so as long as the world maintains its present course; but in the make-up of the worlds which came before, the air had occupied a different place among the parts of the universe; and of the worlds to succeed the present one (for he held that the universe becomes and is destroyed ever anew without end) the parts would again be otherwise disposed, mere chance accounting for these diverse arrangements. He held, in the same way, that most parts of the animals, too, come to be where they are by fortune, and that in the original construction of this world, heads were brought forth without a neck, owing to chance.

6. Some have attributed even the original constitution of the whole universe to chance -- without assigning a reason for doing so.

But some of the Ancients went even farther than that, attributing as they did the very constitution of the whole universe to chance, as well as all the parts of the world and their arrangement. For they held that the heavens in their courses and the movement of the stars which separated and set in order all that exists beneath them, were wrought by chance. This seems to have been the opinion of Democritus when he said that from the concourse of atoms, mobile by their nature, all of heaven and earth was established by chance. In submitting the original constitution of the universe to fickle chance, Democritus did not mean to exclude orderliness from the ensuing course of things and events. In fact, it is significant that the philosophers who ascribe the initial constellation of the universe to the caprice of fortune, are frequently they who impose infallible necessity upon the subsequent course of events, down to the most exact detail of place and time. They will say that any particular thing or event, however necessary, still remains contingent as soon as we compare it to the initial constellation of the universe inasmuch as this might have been different from what it was in fact. This, as we shall see, is a purely mechanistic conception implying a negation of nature itself.

7. <u>The Ancient philosophers ascribed chance to the large-scale phenomena of Astronomy as having been their original cause, while they excluded chance from the sphere of events more near to us, from which they had gathered the notion of such a cause.</u>

The latter position is indeed a strange one. For they who hold it do not ascribe animals and plants to fortune, but to mind or to nature, or to a determinate cause of some kind. And in this they are obviously right. For this is plain from the most common observation: an olive comes from one determinate kind of seed, and a man from another kind. These things do not come about haphazardly, but with order. Cabbages do not produce elephants, nor elephants mice. Now those same philosophers nevertheless ascribe to fortune the most regular and orderly phenomena which we observe in nature, namely the stars in their courses, as if they had no such determinate cause like the one which they assigned to animals and plants. Yet if chance brought about the original constitution of the universe, from which the present steady course of things came forth, surely it is something which deserves to be dwelt upon, and some reason might have been advanced to show why it is so. But this the Ancients failed to do.

8. The orderliness of large-scale phenomena provides no reason for ascribing them to chance.

It is precisely the orderliness of large-scale phenomena that from early date has made astronomy the most exact of the natural sciences. Such phenomena, it seems, would give no inkling of chance, whereas it is precisely among the things — such as animals and plants — which these philosophers attribute to a determinate cause, that chance is observed, or at least the appearance of it. In other words, to those phenomena in nature which are most orderly, where nothing appears to happen by chance, they assign that type of accidental cause whose notion they had gathered in the observation of these things from which they exclude chance. For much of what immediately surrounds us, and much of what happens to ourselves, we attribute to fortune or to chance, but never an event such as an eclipse. Taking into account their own position, it would therefore have been more reasonable to make allowance for fortune or chance among the things of which fortune or chance may be the cause, instead of imposing it upon events which apparently provide no reason for ascribing them to such a cause.

9. Some philosophers, as well as popular opinion, hold that fortune is a cause, though inscrutable to the human mind.

Concerning the nature of fortune, there is still a third opinion to be mentioned here. For there are others who believe that fortune is indeed a cause, but an obscure one, inscrutable to the human mind, something divine, whose mystery is beyond the reach of man. (This is also the popular opinion which the greatest among the poets have acknowledged and used. E.g. Homer, Aeschylus, Sophocles, Virgil, Dante, Ronsard, Shakespeare, Calderon). They held that all fortuitous events must be reduced to a divine cause which orders them, somewhat as we ourselves maintain that all things and events, including the fortuitous and the casual, are governed by the Providence of God. Yet, as remains to be shown in First Philosophy, they who rightly maintained that a divine cause governs all that is fortuitous and casual were wrong, nevertheless, in the way they used the name 'fortune' when they called this divine cause, itself, Fortune; or when they named the certitude of this divine cause Fate, as if its infallibility imposed necessity upon all things and actions. But we shall come back to this, once fortune and chance have been defined.

Lesson VIII

WHAT FORTUNE IS.

1. A definition presupposes division.

To define is to confine a thing to itself, setting it apart from other things. To do this, we must compare it with other things, accounting for what it has in common with them as well as showing how it differs. That is why we must first bring out the difference of those things which we can signify nevertheless by the same word inasmuch as we already know them to be similar. Whatever fortune may be, the word 'fortune' is used to signify the cause of effects of a certain kind. 'Fortune' being the name of a cause and 'cause' a relative term, we cannot define fortune without referring to its correlative, viz. the effect. We must, therefore, consider the divisions of effects as well as of causes, and then show under which members of those divisions fortune is contained. And since fortune is assigned as a cause of an effect — such as when a man unexpectedly discovers a treasure while digging a water-well — we cannot know what kind of cause fortune is without knowing what kind of effect it is the cause of. Three such divisions must here be called to mind.

2. The first division of effects to be considered in view of the definition.

The first division of events that come to be is the

following: (a) Some things always come to pass, at least within the limits of direct observation, such as the rise of the sun; (b) Others come to pass for the most part, as when a man is born provided with the power of sight. It is of neither of such happenings that fortune is said to be the cause, nor can the effect of fortune be identified with any of the things that come to pass either inevitably, or for the most part; (c) Yet the latter member of the division implies that some things happen but rarely, namely those of which all say that they happen by chance, such as to be born blind or with a deformed hand or foot. As a matter of fact, it is only with regard to such rare events that we speak of chance or fortune as distinguished from nature and intent. Whatever determinate cause may be involved in the production of such exceptional events, it is not because of such a per se cause that the effect is called fortuitous. It is therefore plain that fortune must be something after all.

> But suppose one were to say that this man was born blind because early in his embryonary stage of life his mother had the mumps. As far as the blind man is concerned, this would explain his blindness only in the way we explain the wealth of the man who, while digging a well, discovered a treasure; he would not have discovered it had no one put it there, or had it not been where he dug the well, or if he had not dug the well at all. Only to this extent can a fortuitous event be accounted for. But this does not explain why it is called fortuitous. Gravitation and the human body being what they are, when the catch of the elevator-door fails to keep it locked and Socrates unwittingly steps into the void of a fifty-story depth, what could be more natural than that he should be definitely inconvenienced at the bottom of the shaft. All the factors which entered into play can be easily retraced, and to mention, in this connection, a "psudo-cause" such as fortune or misfortune may appear unscientific — so long as we forget all about Socrates and what he really wanted.

3. Objection against the first division: it appears incomplete.

Some have found fault with the above threefold division. It is incomplete, they say, for some things may be equally possible. E.g. when Socrates is free to sit or to stand. But this case is quite beside the point. For until Socrates actually decides to sit or to stand, nothing has happened. And though we know that when sitting down he might have remained standing instead, we do not say that he sits down by chance. We might however speak of misfortune if in sitting down he fell between two chairs and hurt himself. Yet, if this happened often, we would ascribe the fall not to chance but to habitual distraction or frequent carelessness. Now both 'normal' and 'unusual' are already implied in the second and third members of the division. It is therefore complete as to the things that actually happen.

4. The distinction between 'necessary' and 'contingent'.

Now whatever happens of necessity happens always. But to be certain that something happens necessarily, it is not enough to observe that in our experience it has always happened in the manner in which it does, i.e. without exception. Some have been mislead to define the necessary as 'that which meets no obstacle', or 'what remains unhindered'; whereas what happens frequently they describe as 'what can be impeded in some cases'. But this is not quite reasonable. For by

'necessary' is meant that which, by its very nature, cannot fail to be; whereas in the sphere of things that happen 'for the most part', some fail to be, or to be such as they should. But whatever may happen to be impeded or happen not to be impeded, that is contingent. Nature could hardly oppose an obstacle to what cannot fail to be — for in this case every attempt to hinder it would be made wholly in vain.

> It must be noted here that the word 'contingent' is synonymous with 'possible'. Now this 'possible' may be understood of what is opposed to 'impossible'. Taken in this sense, 'possible' is not opposed to 'necessary', for if it were, the necessary would be impossible. But 'possible' can also be understood of that which is opposed to 'necessary', meaning whatever can 'not be'. And the latter possibility or contingency is again twofold. Socrates may stand or sit down, as he wishes. If he chooses to sit down, this position may be called contingent inasmuch as he might have chosen to stand, i.e. with reference to what he might have chosen before he actually chose to sit. But this meaning of 'contingent' is very different from the 'contingent' conveyed by the possibility of his falling between chairs when he moves to sit down. Of the first 'contingent' event he is a determinate cause inasmuch as he deliberately chose this alternative; of the second, too, he is a cause, but quite unawares, and might have prevented the fall had he realized that the chair was not where he chose to sit. He did not choose to fall, as the clown does — at least not in the present example. As we shall see further on, 'contingent' in the sense of what can <u>be</u> or <u>not be</u>, always refers to action, by will or by nature. And when we speak of the 'laws of chance", the word 'chance' receives a new imposition, for a reason which in due place we shall explain and justify.

5. <u>The second division of things that come to be.</u>

The second division of things or events that come to be is taken from purposeful action. Some events are for

the sake of something and some are not. This may be understood in two ways: (a) E.g. bitter medicine is taken, not as 'that for the sake of which', not for its taste but for the sake of something else, viz. health. Thus anything made or done for the sake of something else can in this respect be called good only with reference to that something else, and not with regard to itself; (b) Things not done for the sake of something may also be understood of what we do without deliberation, such as unwittingly scratching one's itchy scalp, or anything we do unpremeditated, by way of a motion released by nature. Some purpose may be served here, but it is not a deliberate one. In fact, many things may happen to what we do without their having been intended, as when Socrates takes the wrong bus.

6. <u>The third division of things that come to be</u>.

The third and final division of what comes to be is the one we make concerning the things that come about for the sake of an end. For some of these become as the result of our willing them, and some of them by nature. For the moment it is enough to note that even in nature, apart from man's influence, some things apparently take place for the sake of an end. E.g. animals presumably like to eat and may be subject to pain which they seek to avoid. It is only among philosophers that they are sometimes said to be no more than intricate machines constructed for no end by nothing, and behaving for no purpose at all.

7. How the three above divisions are mutually inclusive.

These three divisions turn out to be mutually inclusive inasmuch as, on the one hand, those things which become either from wilful design (such as Socrates going where he wants to be) or from nature (such as a dog digging for a bone he had buried), come about for the sake of an end; and inasmuch as, on the other hand, those things which happen for an end, come about either always or frequently.

That the above mentioned divisions do include one another can be shown by the following argument: Things that happen either always or frequently, are either from nature or from will. Now both in what happens by will and by nature, some things happen for a purpose. Therefore, amongst those things which happen either always or most frequently, some of them are wrought for a purpose.

8. The division of causes into per se and per accidens, and the two kinds of per accidens causes.

With a view to defining fortune we must turn to still another division, taken this time from the cause. Now the things that we ascribe to fortune are precisely those which, happening seldom and in an incidental way, are nevertheless similar to the things produced by wilful design inasmuch as they have the nature of 'that for the sake of which'. For just as some beings are per se and some just incidental, so it is with causes. For instance, the per se cause of a house is the art of housebuilding. If the housebuilder happens

to be pale or a musician, we can say that the house was built by a pale man, or by a musician; but this is to assign a purely incidental cause inasmuch as there is no per se connection between being a housebuilder and being pale or a musician or both. Now this is not at all the kind of accidental cause we identify with fortune. Surely we do not say that the house was built by chance inasmuch as the housebuilder happened to be pale or a musician. For the pailness of the builder or his being a musician contributes nothing to the house.

We must therefore distinguish two meanings of incidental cause: (a) One meaning is obtained when that which is called an incidental cause is considered on the part of the cause itself, as in the previous example, where the cause is said to be incidental by reason of what is incidentally conjoined to the per se cause, as when "pale man", or "musician", is called the incidental cause of a house, when the per se cause, i.e. the housebuilder, happens to be a pale man or a musician. This has obviously nothing to do with fortune, yet it is useful to show what is meant by a cause that is no more than incidentally one and incidentally a cause. (b) The other meaning of incidental cause is understood when we consider the cause from the viewpoint of the effect. If something is incidentally conjoined to the per se effect of the per se cause, then the per se cause is said to be the accidental cause of the effect which is incidentally conjoined to the per se effect. Thus the housebuilder is only incidentally the cause of

the family quarrel which may arise about the house that he built.

It is in the latter sense that fortune is a cause per accidens, i.e. because of something incidentally conjoined to the effect of the per se cause. As when a man, in digging a well for the sake of water, strikes oil. Striking oil is only incidentally joined to what he had had in mind when digging the water-well. For, just as in natural generation the per se effect of a horse is a horse, so too the per se effect of a free agent, acting from design, is that which comes about according to his intention; but whatever occurs to this effect beyond what was intended, that is merely incidental to it -- provided, however, it occurs but rarely. If there were a frequent coincidence between digging a well for water and striking it rich, almost everyone would be at it and not so much for water. For whatever is always or frequently joined to what is first intended, falls under the same intention. Suppose a man, who knows from experience that he becomes inebriated nearly every time he drinks wine, maintains nevertheless that he never really intends the state of drunkenness, but drinks wine only because he likes the taste, in such a case the loss of reason could not be ascribed to chance, and the man could not be excused. It would be silly to say that a person, intending some certain thing, does not intend that which he knows to be frequently or always joined to what he primarily intends. For instance, if to obtain the things he wants a man saw no way out but to steal them, and if he did, however much he may have

disliked to steal, he could hardly be excused for saying that it is the good things he wants, not their stealing.

From all this we see the difference between a per se cause and the kind of per accidens cause which is fortune or chance: the former is finite and determinate; whereas the latter is infinite and indeterminate, since what may occur to any one thing is endless. For the things which may happen to Socrates, and which he did not have in mind when going to the market to buy fresh cabbage, are incalculable: he may unexpectedly run into a man whom he had wanted to see/an enemy he wished to avoid; he may get run over by a truck, be drenched and catch his death of cold, etc. etc.

> If, to decide what to do a person had to take into account everything that might happen to him when doing this or that, he could never make up his mind to do anything at all. Still waiting for a wind? Never shall thy seed be sown. Still watching the clouds? Never shall thy harvest be carried. [Eccl., xi. 4] Nor would it help to make up his mind to do nothing at all, for the things that may happen to him even when he does not make up his mind, they too are without end. This does not mean that all that may happen to one is possible in the same degree. If this were so all reasonable action would be paralyzed. The fact that a plane may come down at the wrong time or explode in mid-air does not mean it is unreasonable to fly.
>
> Leibniz denied the distinction between per se and per accidens when, for instance, he taught "that the notion of an individual substance encloses once and for all everything that may ever happen to it, and [that] in considering this notion, one can see in it all that may ever truly be said of it". E.g.: "the individual notion of Adam encloses all that shall ever happen to him", and "God, seeing the individual notion or thisness of Alexander, sees in it at the same time the basis and reason of all the predicates which

> can truly be attributed to him, for example that he would conquer Darius and Porus, even to the point of knowing a priori (and not by experience) whether he died a natural death or whether by poison...". According to Leibniz, the same connection exists between the "notion or nature" of Caesar and the fact of "passing the Rubicon". In reducing all contingent propositions (such as: 'Socrates is in the market', or: 'Socrates happened to run into his debtor') to necessary propositions (such as: 'man is an animal', or even: 'Socrates is an animal'), Leibniz identifies what is 'possible' as opposed to 'necessary', with what is 'possible' as opposed to 'impossible'. Now the latter 'possible' embraces both what is necessary and what is 'possible' as opposed to necessary; and even what is not necessary but only possible, is necessarily possible, for if it were not, it would be impossible. But 'to be necessarily possible' and 'to be necessarily' are not the same. If they were, anything that does not imply contradiction would necessarily be or of necessity come to be. At one time it was true to say: 'Caesar shall die', which was necessary, but it was also true to say: 'Caesar may die of poison', and: 'Caesar may be stabbed to death' both which were truly possible. But the fact that he was actually stabbed does not mean that it was formerly untrue to say that 'Caesar may die of poison', or 'of malaria'; although 'to die of poison' or 'of malaria' is no longer possible for him, and therefore no longer true.

9. <u>Under what members of the previous divisions fortune and its effect are contained</u>.

It remains to be shown under what members of the foregoing divisions fortune is contained, as well as that which comes from fortune, viz. the effect we call 'fortuitous'. It was already stated at the beginning of the preceding number that fortune and chance are among those things which happen for the sake of something.

We must now make plain what was meant when saying that fortune and its effect are in the sphere of things done for the sake of something. Let us return to the example of

Socrates going to the market to buy some cabbage, with no other purpose in mind. He knows, of course, that near the vegetable stand there will likely be a streetsinger, a necktie-vendor, the smell of French-fried potatoes, as well as some friends who are usually there on a Wednesday about this time, and many other things which experience has led him to expect. His wife, Xanthippe, had recently hinted a new hat, and since Socrates' procrastination affected her humour, he had done his best to see a debtor of his, but had so far not succeeded. Yet he wanted the money, to comply with Xanthippe's desire. Having reached the vegetable stand, who is there, munching French-fried potatoes, but this debtor of his. This meeting could not have been reasonably anticipated, for Socrates had never seen his debtor there before. Socrates has no difficulty collecting his debt, and anticipates a warm reception at home. Now this is a good for the sake of which he would have come to the market had he known that his debtor might be there. Yet without going there for this purpose, he nevertheless obtains the good he wanted all the time. It would not be ascribed to fortune if collecting the debt had been indifferent to him. He has now recovered the debt without having gone to the market with that aim in mind at all. So that an action may actually serve a purpose which it was not intended to serve. Since in this particular case Socrates did not go there to meet his debtor, although collecting the debt had been one of his preoccupations, it is per accidens that he recovered it on this given occasion. It is per acci-

dens that, coming to the market for a well defined purpose, some other purpose, quite unexpected, should be fulfilled. We insist on 'unexpected', for if Socrates had had some reason to anticipate that his debtor might be there, the meeting would not have been fortuitous. It is no less plain that to be unexpected and not intended such an event must occur only seldom. The recovery of the debt would not have been purely incidental if Socrates always or usually met his debtor there or frequently returned from the market with money collected from a debtor.

From this it is clear that the cause we name fortune is a per accidens cause of something rare, unexpected, having the nature of a good for the express sake of which an action would have been performed, or abstained from, had the agent known.

We said 'or abstained from' because if on the one hand the debtor had counted on putting off the payment — and actually disliked to settle when he did — and if on the other hand he had known that Socrates might turn up in the market that day, he would have staid at home or gone some place else. To avoid harm or evil is in its own way a kind of good. It is in this sense that 'misfortune' comes under the general heading of 'fortune'.

Things which come about in an incidental way are said to be from fortune (and we shall see later how this is to be distinguished from the kind of chance that is not fortune) when they have the nature of a good with regard

to things done for the sake of such a good as the result of wilful design and intelligent deliberation. Let us recall, in this connection, that if a man went to the market for the purpose of collecting a debt, or if, when going there he always or frequently recovered a debt, we would not say that he came into his own thanks to fortune. As when someone often or always soils his shoes when going along some muddy path, we do not say that this is due to chance just because he does not go there for the sake of soiling his shoes.

It is clear then that fortune is a per accidens cause in the sphere of those things which come about by wilful design for the sake of an end, but only seldom. And from this it is also plain that fortune and intellect are concerned with one and the same thing, since to act from fortune belongs only to agents who have intellect, for design and will are not without intellect. And while it is true that only agents having intellect can act by fortune, yet the more a thing is subject to intellect, the less it is subject to fortune. Even amongst men, they who have the greater experience of life are less subject to fortune than they who have less. The more we can foresee what may happen when we do this or that, the less we are subject to fortune.

> Concerning the contingent that is opposed to the necessary, there is, then, a radical difference between (a) that which can be or not be according as we will — such as going to the market instead of remaining at home or going somewhere else —, and (b) the good or harm that may happen unexpected in this particular action. The former 'contingent' is the per se effect of a per se cause; the latter

> is a per accidens effect of a per accidens cause. It is plain in the case of fortune: the per se cause can be cause per accidens by reason of the limited range of what our mind can extend to an account for in practice.

Yet no human mind, indeed no finite intellect, could possibly embrace whatever may happen as a result of this or that one of his actions. He who possessed such complete control would have 'knowledge of good and evil', i.e. he would always know how to ensure the good, forestall every evil, and be unfailing providence to himself — even as God who knows all. And whatever finite minds believe such knowledge to be theirs, they are "the slaves of chance, and flies of every wind that blows".

Lesson IX

THE REASON WHY THE PHILOSOPHERS OF OLD AND THE COMMON PEOPLE SAY WHAT THEY DO OF FORTUNE.

1. Having defined it, we must now try to account for the things which have been said about fortune. For there is some reason in every one of the opinion we have cited. They who said that fortune is not an obvious cause, that it is inscrutable to man, are quite right. For, accidental causes are infinite, i.e. indefinite, and fortune is such a cause. Now, whatever is infinite and undetermined remains unknown to us in that respect.

> Which does not mean that we cannot define infinity, nor distinguish various types of infinity. Indeed the cause which is universal <u>in essendo</u> is an infinite cause, but infinite in a sense which is the opposite of the present one; and the most determinate of all causes. We shall go into this matter in Book III. For the present it is enough to point out that, e.g. in the sphere of whole numbers, there is no last; and that in the sphere of action it is impossible to take account in advance and in practical fashion of <u>all</u> that may happen to one or to others, now or in future, as a result of one's doing this rather than that.

2. Turning to the very first opinion we referred to in Lesson VIII (n. 2), we must now show in what sense it is true that nothing is by fortune. Fortune being a per accidens cause of an effect which is itself only 'one' per accidens (such as the unity of 'to dig a water-well' and 'to come into possession of a treasure'), and since any 'being per accidens' compares to what is per se as to a kind of non-being, fortune is in this sense a cause of nothing, i.e. not of what is a

being absolutely; it is not the cause of a per se effect. (Yet, as we shall see in Lesson X, a per accidens being may be intended per se by an intellectual agent.) Just as the flute-player is not the cause of the house as flute-player but as housebuilder, in the same way Socrates, when he goes to the market for one purpose, and not at all for the sake of recovering a debt, he is, in going there, a mere per accidens cause of the recovery. And this cause is infinite inasmuch as the same encounter might have occurred had he gone to the market for a reason quite other than the one he did go for, namely to buy cabbage. For he might have occasioned the same meeting had he gone to that place for a different purpose, such as to pay a visit to a friend, to look for someone, to avoid someone, to see a play, etc. There is no end to the reasons why he might have gone there, and in each instance he might have unexpectedly recovered the debt, something he had wanted all along. Thus there is infinity on the part of what may happen incidentally, as well as on the part of the cause. And in this respect, cause and effect are correlative.

3. We must now account for what is popularly said about fortune. Everyone seems to understand, when fortune is called 'irrational'; and we currently speak of 'good' and 'bad' fortune. In fact, the adverbs 'fortunately' and 'unfortunately' are used so often and so lightly for the mere sake of bolstering conversation that whatever meaning they retain has strayed far from the original yet popular sense of 'good fortune' and

'misfortune'. On the other hand, we often speak of a "lucky person", i.e. one who for some unknown reason is 'fortunate' in his enterprises. Here, too, the words 'fortune' or 'luck' have received new impositions. And there are reasons for all this, as we shall have occasion to show.

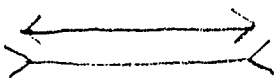
4. There is good cause for saying (a) that fortune is "without reason", "against reason", or irrational. And this is true inasmuch as we can reason only about what happens always or for the most part. Now fortune occurs in neither. Hence, such causes, existing for the least part, being accidental, infinite, and without reason, it is plain that fortuitous causes are infinite and without reason — for every per se cause produces its effect either always or for the most part.

¶ To put it briefly, error with regard to proper sensibles is incidental to them in two ways: (a) Like when the colour-blind believe that the way they see colours is the ~~xxxxixxxx~~ way in which all or most people see them, or when owing to illness we ~~xxxxxxxx~~ attribute the change in taste to the food. Such errors consist in judgment ~~xxxxx~~ of what is normal in sensation, on the basis of a sensation that is not the ~~xxxxxxxxxxx~~ one most people have, ascribing the incidental difference to the things ~~xxx~~ the sense refers to. ~~(b) When any quality we perceive is judged as belonging~~ to belong to the thing indicated by the ~~xx~~ sense, as ~~xxxxxxxxx~~ an absolute ~~xx~~ property of that thing.

Must we conclude from this that there ~~xxxxxxxxxxxx~~ is nothing in the things themselves ~~to which our senses refer in xx~~ mere referred to by our sensation perception, which could be rightly called sensible quality, or even quality, to the point where the external cause of sensation would be of a different nature altogether, like quantity? We will come back to this question after discussing the ~~x~~ common and ~~xxxxxxxxx~~ incidental objects of sensation in respect of certitude.

[b] Error with regard to common sensibles.

Mistakes in judgment about the common sensibles, is normal. Like when of two ~~xxx~~ equal horizontal lines, one terminated by arrow heads and the other by feather heads, the ~~xxxx~~ second appears longer than the first.



Actually, there is error only so long as we judge the things to be as they appear in sensation, like if we believed that the sun is the size of a dinner-plate.

In the case of common sensibles we, on the one hand, commit ourselves far more as to the status of the things ~~xxxxxx~~ 'out there' while on the other hand our mistaken judgment can be corrected ~~xxx~~ by measurement. Because of this possibility of verification by measure, the common sensibles are accorded a more objective status than the proper ones. We must observe, nevertheless, that in the process of measuring an activity is involved, viz. the collation and comparison of measure and measured like in counting or in determining

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because its colour resembles that of something that is sweet, like honey.
But this is not the meaning of incidentally sensible that we intend here

length, and this operation is performed by the mind, though on the basis of and together with external sensation.

There is another way in which common sensibles lead to error in judgment. The reason is that a process of mathematical abstraction goes on unceasingly while we have perceptions of quantity and of quantitative modes. We can draw a line so thin that we have no distinct perception of width, and its parts in length appear so fused that we have an impression of uninterrupted continuity, so that we assimilate the sensible line to the one that is generated in imagination by a point in motion. Both to touch and to sight the bowling-ball has the appearance of a true sphere. Actually, visible or tangible line or sphere offer no more than the appearance of true continuity and regularity. For it is only when we consider a line apart from a sensible line that we can be sure that it is a line—is a line in the sense of true—, or when we consider a sphere apart from a sensible one that we can know that it is a finite solid having every point on its surface equidistant from a common center. We commit an error when we project this ideal exactness into the objects of sensation, while it is only by prescinding from per se sensible objects that we achieve that rigour. To proceed as if they were the same, like when we take a star as a point, is an example of the kind of fiction that is needed in mathematical physics.

We are mistaken, too, when we believe that the proper sensibles can be expressed in terms of quantity or of quantitative modes, like when we suppose that the definition of a colour by its angle of refraction is a definition of the proper sensible colour as such. If it were, we could know exactly what it is to see colour without having any sight at all.

[c] Errors with regard to what is sensible per accidens. They are so easy and so many that in order to show where they reside we will have to be clear about what we mean by 'incidentally sensible'.

(1) (a) The per se object of one sense may be called incidentally sensible to another sense, like when sweetness is called visible inasmuch as a white thing may in fact be sweet, the sweetness being per se perceptible to another sense, namely taste. And here we may err, like when a yellow liquid, perceiving e.g. bile, we believe it to be sweet because its colour resembles that of something that is sweet, like honey.

But this not the meaning of incidentally sensible that we intend here.

(b) 'To be a sense-object incidentally' means something quite different from the preceding when we say, for instance, that Socrates is incidentally a sense-object, whereas his whiteness or his figure are per se sensible. ~~The connection between it and white, and it and man, Socrates, is only incidental~~ It is accidental to the white thing, which is sensed per se, that it should be a man. For white man does not act upon the sense qua man, but qua white. ~~That which per se sensible should be that which is a man incidentally~~ 'Incidentally' qualifies the connection between what is per se sensible and what is not so with regard to the sense. Some other white thing, though not a man, would act upon the same sense in the same way. Socrates does not modify the sensation of white by his being a man, but by his being of such a colour. Yet, if Socrates is to be called incidentally sensible, ~~Socrates~~ he himself must be ~~known~~ perceived somehow by the one who is sensing: if he were connected with the object that is per se sensible without himself being perceived, he could not be said to be sensed incidentally.

Now when someone says 'I met my friend Socrates this morning', he means that he actually met the person of Socrates, and not merely that he saw some colour and figure, nor that what he met was only incidentally Socrates. And this implies that while not perceived per se by any of the senses, Socrates is known per se nevertheless by the one who senses: though not sensed per se, Socrates is yet known per se by the one who senses him incidentally.

It does not follow, however, that anything thus knowable per se should be called sensible incidentally, but only that which is at once apprehended so soon as a per se sense-experience occurs. Thus, as soon as I see anyone talking or moving himself my mind perceives his life, and I can say that I see him live. In this we see that 'to know' is not the same as to have an external sensation. But just what it is to know in that fashion, or what is the power or faculty of the mind by which we have that kind of knowledge is of no direct concern to us at this juncture.

18. To define without sensible matter things that cannot be without it.

We have seen, in a very general way, what is meant by things which cannot be defined without sensible matter. Let it be granted, for the moment, that they are what the science of nature is about. Now there is still another mode of defining, like when we define a number apart from a corresponding number of sensible things, or a figure apart from the figure known to sense. This second type of definition differs widely from the first. The first was abstract in the sense that we left aside the individual sensible thing, like the bones and flesh of Socrates; but we did retain bones and flesh, without which a man can neither be conceived nor exist. By 'exist' we mean that man could not even exist in the sense of truth, when 'what it is to a man' is to be of bones and flesh: we could form no true propositions about man. The second is abstract in the sense that we leave outside the definition both individual and common or universal sensible matter. This, then, is a a very different way of abstracting from matter.

The second type is not at all like going from the individual Socrates to man, and then from man to animal, and from animal to living being. Note, however, that in the first type of abstraction, the passage from individual to universal was a radical step from potentially intelligible to actually intelligible, whereas the further transition from man to animal takes place on the same plane of actual intelligibility. The second type is of a radically different kind as can be seen from the example of circle, viz. 'a closed plane curve/ circumference is at every point /such that equidistant from the point within called the center.' That the status of this thing we defined is very different from that of a circle drawn on the blackboard or the circular path of a planet is plain from the fact that we could not possible verify the definition in experience, eventhough we may have started by drawing a circle with a compass: the definition is not of what we have drawn. The drawing was no more than a stepping-stone to which we cannot return one the circle is defined although we may

Man and animal still being defined with sensible matter. And living being (for, till it would be demonstrated that thin can be life without sensible matter.

abstracted them, and not about what may vaguely correspond to the in the order of common sensibles. They are abstracted from both per se and incidentally sensible, and mathematics is about what is thus abstracted from individual and sensible matter. And if we abstract starting from common sensibles, like the triangle drawn on the blackboard, mathematics is about what has been abstracted and not about what it has been abstracted from: the demonstration is not even about the kind of triangle that is drawn on the blackboard, for it is a white one, a mass of chalk hanging there; it is a per se sense-object. There is indeed something about the chalk-lines that our mind can consider without them, but this 'without the sensible lines and angles' is not understood to be in the sensible lines and angles. If it had to be in them, it could only be in the way in which a sensible triangle is a triangle, vix. in sensible matter and without any verifiable exactness like that of what was abstracted.

There is, then, a separability to mind that is typical of quantity, such as number and dimension. The reason is that, in the things of nature, quantity is prior to quality, like surface prior to colour, and prior to the incidentally sensible subject of sensible quality as such. So that even if quantity cannot exist in reality without a per se sensible subject and without quality, it can nevertheless be abstracted from them and considered in the way we have said.

appear able to do so. And the same holds for the 'sphere' which, e.g., abstracts from 'bronze sphere'.

We must note here that the abstract sphere is not only not hard nor soft, cold nor warm nor coloured; it is not even a common sensible like the shape of the bronze sphere. Considering 'sphere' in separation from anything per se or incidentally sensible, the mind confines itself to something that has the nature of form not with regard to what is incidentally sensible like the bronze sphere, but with regard to the three-dimensional continuum of the sphere, where the continuum is as the matter and the shape is the form. That it is a separation performed by the mind with regard to what is not definable without sensible matter can be seen from the fact that neither its definition nor anything derived from it cannot, nor do they need to be verified of anything known to be with sensible matter. So that if to be true the statement 'a sphere is a three-dimensional continuum bounded by one surface which is at every point equidistant from a point within called its center' depended upon its verification in experience, we could not know it to be true until we had done so. Yet in predicating the definition of the definitum we see that the proposition is true, viz. that there is such a body, that sphere is in the sense that we may form true positions about it, whereas 'diagonal commensurate with its side' is not. And this differs widely from defining or stating propositions about things that are with sensible matter, for we imply as essential that there can also be instances of them having existence outside the mind, in nature, like Socrates, or his snubnose.

Thus we have an actual intelligibility of another kind, free from the limitations of sensible matter. It is sometimes understood that mathematics is about common sensibles. This is wholly wrong, for they, too, like the proper sensibles, are per se sensible. Mathematics is about the forms as the mind has abstracted them, and not about what may vaguely correspond to the in the order of common sensibles. They are abstracted from both per se and incidentally sensible, and mathematics is about what is thus abstracted from individual and sensible matter. And if we abstract starting from common sensibles, like the triangle drawn on the blackboard, mathematics is about what has been abstracted and not about what it has been abstracted from: the demonstration is not even about the kind of triangle that is drawn on the blackboard, for it is a white one, a mass of chalk hanging there; it is a per se sense-object. There is indeed something about the chalk-lines that our mind can consider without them, but this 'without the sensible lines and angles' is not understood to be in the sensible lines and angles. If it had to be in them, it could only be in the way in which a sensible triangle is a triangle, vix. in sensible matter and without any verifiable exactness like that of what was abstracted.

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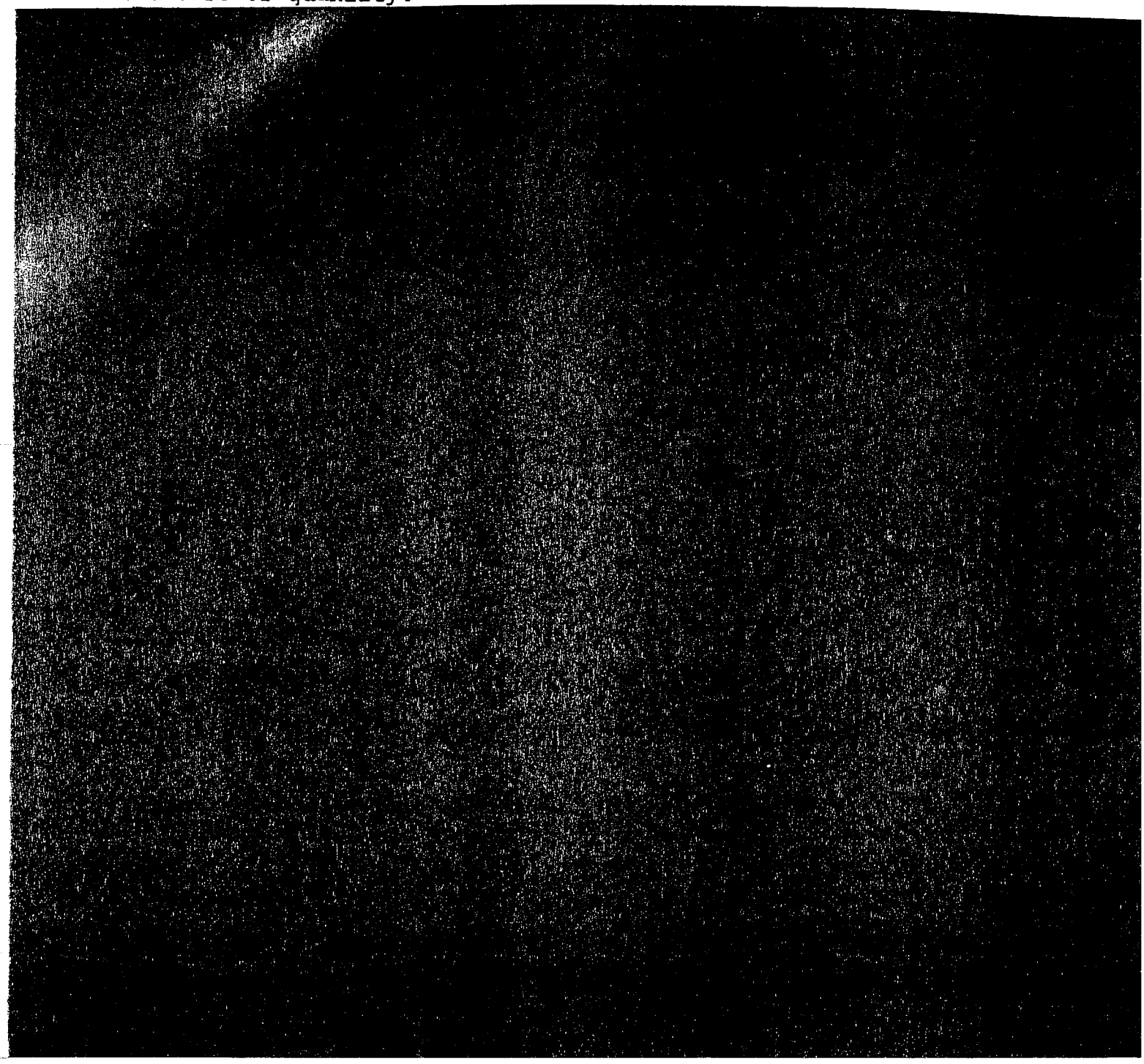
There can be no abstraction of sensible quality in the way that there is one of quantity. The best way to explain this will be to face the objection that when we abtract from sensible quality we still have quality just like in abstracting from sensible quantity we still have quantity. Like when we say 'Socrates is wise', wise is predicated as a quality that is not per se sensible. Why then could we not have a special science of quality like we have one of quantity? Two things should be noted in this connection. First, that what we are examining here is the various modes of definition inasmuch as they distinguish the sciences in kind. Second, that the properties of things that are not some way or other in sensible matter are not positively known to us until they have been demonstrated, and this presupposes a determinate mode of definition. Further consideration of these two points will allow us to show how unique is the case of quantity.



Ch. II

The Order of Procedure in the Study of Nature

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