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Title Philosophy of Gassendi

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THE PHILOSOPHY OF GASSENDI

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THE PHILOSOPHY OF GASSENDI

BY

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PREFACE

Up to the present little attention has been paid to Gassendi. The want of a reliable account of his philosophy has caused him to be neglected, for the nature of his own writings is such as would naturally obscure the value of his message. Hallam, in his *Introduction to the Literature of Europe* (Part iv. chap. iii.), indicates the extent to which Gassendi has been neglected and also the reasons. He refers to Gassendi's "prolixity of statement," "prodigality of learning," and "display of erudition," characteristics which have all militated against recognition of his real merits. In consequence he is little more than a name, or is known as the original of Bernier's work, and is either misunderstood or pushed aside as one who challenged Descartes from an antiquated and untenable standpoint.

To remedy this error and supply what is undoubtedly a page in the history of philosophy I have tried in this book to express briefly the main lines of Gassendi's thought. It has been necessary to condense the matter ruthlessly, but this could be done with all the less danger because so much of the contents of the volumes is historical. None the less it is natural that there should arise

the feeling that a process which condenses chapters into phrases and whole sections into sentences, is an injustice to an author. The atmosphere of comprehensive learning which gives a peculiar charm to these volumes cannot be reproduced elsewhere: it is the breath of an age which every day puts further from us. In compensation for this loss I can only plead the advantages of conciseness. Time works toward the setting forth of the skeleton with the destruction of all else, and in the world of books we take an optimistic view of this unavoidable process and trust that it leaves us what is most enduring and most essential.

That Gassendi deserves honourable mention in the history of philosophy will hardly be doubted. How far he is able to help in the solution of its problems is a point that the reader will estimate for himself. Now that we are recovering somewhat from that disturbance of equilibrium which characterised the development of Cartesianism, such work as that of Gassendi has an opportunity of asserting itself more effectively. If we pause to ask what is the true and abiding characteristic of a philosophic mind we shall see that it is comprehensiveness of view, breadth of vision, combined with a power to see, and not merely look at, the vast array of the knowable. This comprehensiveness makes greatness: through it a man may be the spectator of all times and places. But he must not hope to gain this comprehensive outlook by occupying one solitary peak: he must not flatter himself that there is an essence of all essences, that he can condense all life and thought into one

magic drop. On the contrary he must keep the original wealth of material undiminished if he would have a world in which 'life's garden blows'; if he abstracts and simplifies the product is an 'essence,' a drop of scent in place of the living flower.

This fact is gaining more recognition now than it did some time ago. We do not always remember that the necessity for emphasising the point was not formerly so great as it has been recently. A reading of Gassendi brings home to us the fact that philosophy has not always considered concentration its prime duty, and a return to the atmosphere of naïve pluralism is a refreshing reminder that thought was once childishly unsophisticated. With no intention of denying the value of the progress that has been made, and no attempt to ignore crudities and fallacies, we can still go back with profit to a view of the world that is not obsessed with the tendencies of extreme idealism: we can even go back to the pre-Kantian days with profit so long as we remember that they are pre-Kantian. In some respects it is peculiarly profitable to see what could be done with the material of knowledge before Hume was sceptical or Kant awakened: in the case of Gassendi the moderation and liberality of his views makes him frequently strike the line to which thought was destined to return, and thus appear in close touch with later developments. In reference to this I may add that the quotations from the original have been limited as much as possible. As the whole account is a mere summary the original can be easily consulted, the chapters and divisions of my account indicate the parts of the author which

are being considered. But I have felt compelled to insert quotations and phrases wherever there seemed a possibility of confusion or grounds for suspecting that the language used by me was not justified by the original. In the parts of this book which profess to contain the thoughts and ideas of Gassendi I have aimed only at exhibiting those thoughts and ideas with no more additions than were required to bridge over gaps caused by omission and no interpretation beyond what was demanded to make clear the underlying connexions of the original work. All references to previous philosophers and interpretations of their meaning within that part (*i.e.* Parts I. to III.) are to be credited to Gassendi. My own remarks are only intended to set the essential elements of Gassendi's philosophy in what I conceive to be their true historical light.

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THE WORKS OF GASSENDI

THE following is a complete list of the contents of the edition of 1658.

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Syntagma philosophicum.

Liber prooemialis.

Pars prima quae est logica.

I. De origine et varietate logica.
II. De logicae fine.

Institutio logica.

1. De simplice rerum imaginatione.
2. De propositione.
3. De syllogismo.
4. De methodo.

Pars secunda quae est physica.

Section 1.

Book 1. De universo et mundo.
„ 2. De loco et tempore.
„ 3. De materiali principio.
„ 4. De principio efficiente.
„ 5. De motu et mutatione rerum.
„ 6. De qualitatibus rerum.
„ 7. De ortu et interitu.

Section 2. De Rebus Caelestibus.

(End of Vol. I. pp. 752.)

VOLUME II

Syntagma philosophicum (*continued*).

Section 3. Part I. De rebus terrenis inanimis.

Book 1. De globo ipso telluris.
„ 2. De vocatis vulgo meteoris (ventis, etc.).
„ 3. De lapidibus ac metallis.
„ 4. De plantis.

Section 3. Part II. De rebus terrenis viventibus

Book 1. De varietate animalium.
„ 2. De partibus animalium.
„ 3. De anima.
„ 4. De generatione animalium.
„ 5. De nutritione.
„ 6. De sensu universe.
„ 7. De sensibus speciatim.
„ 8. De phantasia.
„ 9. De intellectu seu mente.
„ 10. De appetitu et affectibus animae.
„ 11. De vi motrice.
„ 12. De temperie.
„ 13. De vita et morte.
„ 14. De animorum immortalitate.

Pars tertia quae est ethica.

Book 1. De felicitate.
„ 2. De virtutibus.
„ 3. De libertate, fortuna, etc.
(End of Vol. II. pp. 860.)

VOLUME III

1. Philosophiae Epicuri Syntagma.
2. Exercitationes paradoxicae adversus Aristoteleos.
3. Fluddanae philosophiae examen.
4. Disquisitio metaphysica adversus Cartesium.
5-9. Epistulae.

(End of Vol. III. pp. 662.)

VOLUME IV

Astronomica. Parts I.-V. pp. 536.

VOLUME V

1. Diogenis Laertii Liber X, cum nova interpretatione et notis.
2. Vita Epicuri, Peireskii, Tychonis Brahei, Copernici, Peurbachii, et Regiomontani.
3. Abacus sestertialis seu de valore antiquae monetae ad nostram redactae.
4. Romanum Calendarium compendiose expositum.
5. Manuductio ad theoriam musices.
6. Notitia ecclesiae Diniensis.

(End of Vol. V. pp. 740.)

VOLUME VI

Epistulae et responsa. pp. 545.

The whole of Gassendi's writings is thus contained in six Volumes folio, with a total of 4095 double-columned pages.

BIBLIOGRAPHY

(I.) The edition of the works to which reference is always made in this book is the edition of 1658 (Lyon). This contains all Gassendi's works (some slightly abridged), except some letters. On this point see Thomas, p. 28: 'Celles qui ont été recueillies par M. de Montmor forment le sixième volume du *Syntagma*: mais leur nombre a été considerablement augmenté depuis, bien que beaucoup restent encore à publier. (Voy. "Documents inédits sur Gassendi," par Tamizey de Larroque: *Revue des questions historiques*, 1877, t. xxii. "Oraison funèbre de P. Gassendi," par Nicolas Taxil, publiée par le même, 1882. "Impressions de voyage de Pierre Gassendi," dans le *Bulletin de la Société scientifique et littéraire des Basses-Alpes*, 1887.)' I have no personal knowledge of these documents.

(II.) Bernier, the traveller, a friend of Gassendi, compiled an *Abrégé de la Philosophie de Gassendi*, 8 vols., 1678; 2nd ed., 7 vols., 1684. This work is naturally far less cumbersome than Gassendi's own volumes. It is difficult to say quite what is wrong with it, but it is certainly wholly misleading, and, having been read to avoid the trouble of studying the original, has done much harm. I began with this work myself, but, after once looking into Gassendi, abandoned it. There is a wholly different atmosphere about Gassendi's writing, and perhaps the kindest criticism is to say that Bernier had more zeal as a friend than ability as a philosopher.

(III.) The only book on Gassendi which I have read is *La Philosophie de Gassendi*, par P.-Félix Thomas, Paris,

1889. I have read this since completing my own account of Gassendi, and owe to it some useful hints and references. Had it been other than it is, I should not have been justified in publishing a second study on the same subject. But the author seems to me to have done less than justice to Gassendi: he does not seem to have considered him an integral part of philosophy as a moving body of thought. Perhaps he is right, but to me Gassendi appears to have done more than patch up Epicurus: he has tried to unite the results, not only of philosophy in the narrower sense, but of all previous and contemporary thought into one whole, as consistent as he thought it could be. Hence we differ; but the student of Gassendi will get more insight into Gassendi from Thomas than he will from Bernier, and find this the conscientious work of one who has gone for his information to the fountain-head.

(IV.) For the rest, I know of no other 'literature of the subject.' For the Life, Sorbière's *Sketch* (vol. I.) is the chief authority. There is also a *Vie de Gassendi* by Bugerel (1737), and by Damiron (*Mémoire sur Gassendi*, 1839). The best short account of Gassendi's philosophy is that of Ritter, to which I have referred elsewhere (p. 17).

(V.) The manuscripts of Gassendi have been preserved, the majority at Tours, some in the Bibliothèque Nationale, and some in Provence (Thomas, p. 28). The edition of 1658, though published after the author's death, represents his final corrections, and is acknowledged to be substantially accurate.

INTRODUCTION

THE line of thought which terminates in Gassendi began in Leucippus. The principal names in the history of its exposition are unfortunately little more than names, and in the case of both the main periods we are dependent on what may be called the second strings for the majority of our information. Thus of Leucippus we know but little, and he is usually taken in conjunction with Democritus, in order that together they may fill out a paragraph in the history of thought: similarly, while we are better off in the case of Epicurus, we none the less find it most convenient not to speak of Epicurus but of Epicureanism, and so give ourselves the latitude of using all the matter that can be collected from the whole school, in which the name of Lucretius stands forth prominently. As we desire to show the development of the subject we shall here try to keep the main points of the different epochs distinct: it will then be apparent how the theory grew and changed in face of new problems and changing conditions.

I.

Atomism and Epicureanism are very different things, but the beginnings of the theory of Epi-

curus[1] are to be found in the atomic school, and the differences will be best understood if the growth of that doctrine is followed. The founder was Leucippus of Elea or Miletus. His standpoint does not seem to have been properly understood by historians of philosophy, but recent investigation has cleared our views on the significance of his language. He was in the first instance an Eleatic, and though the main principle of the Eleatic school, the unity and immovability of the One, seems so entirely opposed to the atomistic trend of thought that they could have nothing to do with each other, we find that in fact the opposition is not so great as appears at first sight, and the atomistic view is generated out of the Eleatic. In this interpretation we are guided by Aristotle, who says, 'Leucippus however thought he had a theory which was in harmony with sense-perception and did not do away with coming into being and passing away, nor motion nor the multiplicity of things. He made this concession to experience, while he conceded on the other hand to those who invented the One, that motion was impossible without the void, that the void was not real, and that nothing of what was real was not real! For,' said he, 'that which is strictly speaking real is an absolute plenum; but the plenum is not one. On the

[1] Gassendi says Epicurus was neither 'Primus nec solus qui Atomos defenderit.' Others are Moschus—'de quo Empiricus et Strabo etiam ante bellum Troianum'—Leucippus, Democritus, Metrodorus, Ecphantus, Pythagoreus, Empedocles, Heracleitus, Plato (qui Empedoclis instar, elementa composuit ex particulis prae exilitate inconspicuis) Xenocrates, Asclepiades, Heraclides, Diodorus, Artemidorus, Mnesitheus, alii' (VI. 160). Truly a cloud of witnesses.

contrary, there are an infinite number of them, and they are invisible owing to the smallness of their bulk. They move in the void (for there is a void), and by their coming together they effect coming into being: by their separation, passing away.'[1]

Atomism is thus at its birth the opposite which Eleaticism generates: the principles of Parmenides are retained, but the One to which they are applied is no longer the *only One*, not *the* Whole, but *a* whole: 'to each of the atoms which he thus arrived at, he ascribed all the predicates of the Eleatic One' (Burnet, *op. cit.* 355). The result was a pluralism which avoided the dialectic of Zeno of Elea: the attempts which had been made to combine the two notions of a continuum and divisibility had failed because they inevitably led to the abyss of endless division: it was obvious that if the continuum could be divided anywhere it could be divided everywhere and finally elude us altogether, and there was no way out of the difficulty but to stand by common sense and declare the ultimate indivisible. Two points are interesting in this connexion: the first is the fact that the earliest form of Atomism is grounded in the opposition of a commonsense view to its contemporary idealism, a heritage of strife to be handed on from generation to generation: the second is the very partial nature of the severance from idealistic modes of thought. At this stage of thought no one blushes to make reality a predicate, but the limitations of language bring us to a

[1] For Leucippus *v.* Burnet, *Early Greek Philosophy.*

dilemma: the void is declared real and not real, and the difficulty lies in the substantive use of 'is': for the void *is*, but is not what is called real: it must therefore belong to a class of existents which we shall call the not-real: with all the sturdy commonsense of a reformer Leucippus says the categories must be made for the things and not things for the category. Henceforth the old reality was to be absorbed into a new Reality which included both the real and the not-real of the former category. The gist of all this argumentation can be expressed in the phrase 'the non-corporeal is as real as the corporeal.' This was first proclaimed by those who are usually regarded as materialists! For the rest we know that creation was explained through the collision of the atoms, in which atoms of *like* shape and form became entangled, and from these entanglements of atoms arose the heavenly bodies. Thus much we may safely attribute to Leucippus, and if any one doubts the reality of Leucippus, it is enough for our purpose that he should stand for Atomism before Democritus. This stage must certainly be distinguished, else we lose the significance of that form of the doctrine in which we have as yet no subjective elements and no attempt to think of the atom as in any sense analysable.

II.

With Democritus we find atomism has undergone a very important change, it has developed from a mere sketch of a cosmogony to at least the rudiments of a philosophy. By this we mean that

it recognises a far wider range of topics, and at least attempts to give explanations of phenomena not touched by the theory in its original form. The two main influences to be noticed in this connection are those denoted by the names of Protagoras and Anaxagoras. From Protagoras comes the subjective tendency of the doctrine, while the work of Anaxagoras has brought into prominence the question of causality and its incidence. The idea of 'homoiomerae' has also expressed a possible theory of the nature of the ultimate parts of the material world which is sufficiently near to atomism to compel the true atomist to define his position more exactly.

In opposition to Anaxagoras, Democritus expressly makes things themselves the cause of motion: whatever else it may have meant, the 'nous' of Anaxagoras implied a cause outside of the material thing. This dualism is now rejected, and we get the explicit statement that the world is to be regarded as a product of matter in motion. The atoms are now said to differ in shape, order, and position: they have no cause, being eternal: they possess motion from the beginning by virtue of their nature, and this motion is in the abstract straight; but in fact, owing to collision, it becomes rotatory. It is difficult to say whether Democritus ascribed weight to the atoms or not: this was the sort of detail which was only specifically settled when an opponent made it necessary to give a deliverance ex cathedra. Wallace remarks on this point: 'There are passages from which it seems that Democritus regarded weight as not an attribute

of the atoms, but only of the aggregations which they compose. But probably these statements are to be taken in a different sense. They may mean that the atom in all cases, however it may vary in size (and such variations are incalculably great), never reaches a size which can be seen by the bodily eye, and therefore, inasmuch as the weight varies directly with the size in the case of the atoms, the atom is never ponderable except when it combines with other atoms to form a body.' It follows from this that the atom has weight but is not ponderable, and this is, I think, correct for two reasons. In the first place, it would be much more difficult to conceive the atoms as falling (which is the first conception of their motion) if they had no weight in theory; and secondly, it is always a principle of this school to work analogically and infer from the presence of a quality in the compound its analogical counterpart in the primary parts which enter into that compound.

The compounds are formed by the natural union of similar particles. This was a point on which considerable stress was laid because it was in direct opposition to the mythical tendencies of the Love and Hate theories of affinity: it was a part of the polemic against all mysticism which was to become characteristic of the spirit of this school.

With regard to the universe Democritus held that the Earth had now come to rest: from the Earth there had arisen by natural processes organised beings. The soul was composed of atoms of the nature of fire. The individual is conceived as

having specific organs each with its appointed functions; but these are very crudely differentiated: the soul is in the head, and its function is thought: eagerness is in the heart and desire in the liver. Perception is caused by the effluxes 'sloughed off' from things: it is not wholly veracious and requires to be corrected. Sense perception is indeed explicitly opposed to the understanding, and the latter is said to give us truth while the former deceives. But this is not to be taken as implying any very exact theory of knowledge: it is very much the same to Democritus whether the deception of the senses is due to physical conditions, such as the distance of the object, or to what we should call subjective conditions. In the same elementary fashion we are told that we know nothing, though we can go beyond our senses, as we obviously do in arriving at a knowledge of the atom; a going beyond which is probably most safely taken to mean reaching quantitatively further, that is to say reaching to subtler forms of matter than are given to the gross sense.

In his ethics Democritus is credited with having uttered or quoted much that is sound; but it is too disjointed to be regarded as either system or part of a system. We may note for further use that he considered the soul the noblest part of man and knowledge the source of true happiness: he also laid stress on the will as the test of true morality, and struck the keynote of later cosmopolitanism in the saying that the country of the wise man is the world.

III.

With Epicurus we come to a much more developed phase of the original doctrine. At first we had only a slender vein of cosmological reasoning: then the theory was extended to psychology of a sort, with an appendix on ethics to give it the appearance of a full-grown theory: now ethics is made the prime end and object of the philosophical treatment of the world in which we live, and atomism is taken as the guiding principle. There is considerable difference between a theory of atoms and an atomic theory of the universe: we shall be concerned chiefly with the philosophical aspects as opposed to what might be called the scientific elements, and therefore for us it is especially important to notice this phase and realise how the original aims and scope of atomism were changed with time, so that it became an instrument for general use rather than a mere statement of what was believed to be physical fact.

In order to understand the scope of a writer's views we have to take some account of the atmosphere in which he lived. In the case of the earliest writers this is generally only possible in the sense that we can detect some definite influence against which he works: thus Leucippus founds himself on and opposes himself to Parmenides: Democritus takes up the very problem Anaxagoras has striven to solve and finds in that opposite his own definition. When we come to Epicurus, the same principle holds good, but the stream of thought has widened, and it bears along with it

the sand of many shores, and therefore the influences we have to consider are greater both in number and range.

The first influence to be considered is that of the political conditions under which the doctrine arose and to which we trace the temper that made its appeal so successful. At the time when Epicurus came to Athens (307 B.C.), the prevailing characteristic of life was its uncertainty. The city was a hotbed of intrigue, and no one could predict which party would be in power next. Athens had lost her empire but still retained enough vitality to struggle periodically into a semblance of independent existence under such a leader as Demetrius Poliorcetes. At other times the Macedonian power regained its supremacy and Athens lapsed into vassalage. In either case the situation of the individual was much the same, and from this point of view the days of Epicurus and of Seneca are identical. In both the individual, finding no objective point of attachment, falls back upon himself, and the attitude of the Epicurean in Athens is that of the Stoic in Rome four hundred years later. With the upbreak of a concentrated national life, the individual felt that he belonged to nobody in the sense that he belonged to himself, and nothing belonged to him in the sense that his self belonged to him. Hence the thinker keeps aloof from politics: he says with Democritus, that the world is the wise man's home; but only in the negative sense, which means abstraction from that immediate world of interests in which alone is there a possibility of activity. The first phase of cosmopolitanism is negative:

it renounces the living unity for a One which is no more than a concept, which, having nothing that can satisfy the heart, is for all practical purposes nothing but a shroud for the burial of hopes that have been sacrificed. Ignoring the Whole, man turns to the parts, and the individual occupies the first place in his thoughts.

Philosophically we can trace the same development on different lines. Plato had been concerned primarily with the scheme of the Whole as a rational connected system. With Aristotle the material of the system had emerged into prominence, and his successors had gone still further, and 'the speculative, transcendental element was eliminated, and nothing left but "positive" science.'[1] This trend became more and more pronounced, and to it we may trace the revival of materialistic types of thought which are exemplified in both Stoicism and Epicureanism. A third element is the consequence of these influences, namely the importance attached to ethics, 'if by ethics we mean an attempt to discover what is the chief end of man, and how it can be attained.'[2]

These three points, then, 'their individualism in morals, their subordination of all science to an ethical end, and their materialistic realism,' are the common characteristics of the great schools of this period. We shall confine ourselves now to sketching the main points of Epicureanism. The sources of information are scattered, and it is difficult, if not impossible, to say in many cases what was actually taught by Epicurus and what was incorporated into

[1] Wallace, *Epicureanism*, p. 6. [2] *Ibid.* p. 16.

the body of the doctrine by his disciples. For our purpose it is sufficient to give a summary of the teaching ascribed to Epicurus, merely noting those details which we know were added later. The chief source of information, apart from reports of Epicurus' own teaching, is, of course, Lucretius: Gassendi's version is not taken into consideration directly because of the obvious danger of mixing his account of Epicurus with the views he proposed to graft on the old stem. Epicurus divides the sphere of thought into the three parts—Logic, Physics, and Ethics: these headings we may as well preserve, though examination of the details will show that some of the subject-matter would hardly be so classified now.

(*a*) The subjective sceptical element in the philosophy of the period is reflected by the Logic of Epicurus in the demand for a doctrine of criteria of truth. The criteria enumerated are perceptions and representations in the theoretical sphere, and pleasure and pain in the practical. These form the subject of the Canonica or doctrine of norms. The idea in the mind of Epicurus is that we must build entirely on the senses: these are in themselves true and final in the sense that nothing can be found to give us certainty when they fail. But he also recognises that the mental life of the individual goes beyond the exact moment during which the sensation lasts; and the persistent residue of the sensation has also its function in the life of thought. Hence he adds to the immediate sense-perception the representations which are also called anticipations. As criteria these must be regarded as bringing in

the elements of time and plurality. Epicurus does not say in so many words that this is so, but a moment's reflection on the use of these representations proves it. They are stored in the mind and emerge into consciousness when the name of the thing is uttered: moreover they function in the strict capacity of norms in as much as they regulate perceptions. 'To enable us to affirm that what we see at a distance is a horse or an ox, we must have some preconception in our minds which makes us acquainted with the form of a horse and an ox'; from which it is clear that the preconception or secondary mental activity forms a standard of reference to which we may return for a judgment (criterium) on the presentation. This does not upset the dogma that the perception as an affair of the senses is always true: it merely tells us how we may find out what the senses are, as it were, *trying* to tell us.

From this stage we go a step further in the formation of Opinion which results from the presence of the permanent residues in our minds. These opinions may be true or false, and the natural test is a return to experience. The opinion may refer to the future or to the occult: in the former case the test of direct experience is merely held in abeyance. In the latter we have a problem, for the opinion may be true but there is no way of getting any collateral support: for this Epicurus provides a negative justification in so far as we are allowed to hold the opinion as true if no contradictory evidence is forthcoming.

This constitutes the gist of the pure canonic of

Epicurus, but we may add to this some notes on the method employed by the Epicureans and the theory of knowledge implied in them. In the first place the criticism which Ueberweg makes upon the idea that the immediate sensation is reality, should be noticed. 'The hallucinations of the insane, even, and dreams are true: for they produce an impression, which the non-existing could not do. It is obvious in connection with this latter argument, that in Epicurus' conception of truth, the latter, in the sense of agreement of the psychical image with a real object, is confounded with psychical reality.' This is undoubtedly true as pointing out that the Epicurean doctrine did not properly distinguish logical and psychological certainty. The entire emphasis is thrown on the psychological groundwork of knowledge, and in consequence the explanation of the attainment of any knowledge beyond the sense-given is neglected to an extent which is wholly unjustifiable in view of the fact that the atom itself is not a sense-datum. This deficiency was apparently felt by such disciples as Zeno and Philodemus, who attempted to give some theory of induction. But, whether they could justify it or not, the Epicureans did get from the known to the unknown: moreover they made no secret of it, but declared that the true process of knowledge was from known to unknown. In addition to induction they also made great use of analogy and, surreptitiously, of deduction. We now have from the Herculanean manuscripts clear proof that analogy was not only used by the Epicurean but itself a direct object of analysis:

Lucretius made use of it in a manner that has been described as 'violent'; and it remained in the school as one of the prime instruments in the advancement of knowledge. In addition to this there were one or two first principles which occasionally come into active service and justify a deductive procedure. The most notable is the dogma 'ex nihilo nihil,' to which must be added the regulative principle that nothing happens by chance. The former of these rules is most frequently used to justify a regress from a compound to its parts: for, it is said, if the whole has such and such qualities the parts must have these qualities though they may not be directly observable in the parts themselves. The most striking use of this principle is the passage where Lucretius asserts that the atoms must have the power of free action,'[1] since we find that power in that complex of atoms called the soul. The use of analogy is best exhibited in the construction of the concept of the gods and their mode of life.

(*b*) In dealing with the physics it will be convenient to divide it into physics proper and psychology. The Epicurean would doubtless have denied that psychology was not physics 'proper,' but the mixture is rather confusing to the modern mind. First then, as to physics proper. We have, the mise en scène of Democritus, a vast place boundless in every direction, full of atoms too small to be visible, from whose conjunctions will arise all the manifold life of this and other worlds. While agreeing in the main with Democritus, Epicurus

[1] Usually called 'free-will,' but see p. 230, Note on Declination.

diverges from his teaching in some details. With regard to the motion of the atoms he attributes the abandonment of the original line of movement which was conceived as in a straight line downward, to the voluntary swerving of the atoms. This is the most striking example of the subordination of physics to ethics, for the difference between Democritus and Epicurus consists in just this, that Democritus tried to settle the question of the nature of the atomic movements from what he knew of the mechanical laws: Epicurus directly opposes himself to the mechanical laws of motion in order to get a basis for the admission of free-agency. It is, in all probability, a mistake to say that Epicurus gave his atoms anything like free-will or spontaneity as we should understand it now: we have to keep in view the fact that the mind to which that free-will has to be referred would be formulated in terms of matter, and therefore all that is required is that the motion of matter should not be regarded as fixed from all eternity: if it is so fixed, my motion counts for nothing: if not, my motion is itself a real factor; and if I am conscious that I move, I may also be sure that my movement is the factor which produces the result that follows. This is an extremely interesting phase of what was later to be the 'free-will' controversy: the difficulty of understanding it and the temptation to misunderstand it, lies in the ideas of choice which we introduce: we ask, 'Am I free to choose, am I free to be what I am?' but before ideas of God and the last judgment came in to produce these subjective

problems, the question of freedom was naturally limited to the simple problem, 'Am I in my activity a real agent?' and it is for this real agency that Epicurus makes room.[1]

A second point of difference is also of great interest. So far our atom has been the ultimate: it is itself beyond the senses and reached by thought, yet it is conceived as sensuous inasmuch as it might be presented to a sense acute enough to detect it. Latent in the fact that the atom is reached by an intellectual process, lies the possibility of that development of the concept of the atom as a concept, which we get in Leibnitz; and in Epicurus we do get so far as the acknowledgment that the atom is logically divisible, this being considered necessary for the explanation of variety in shape. It is significant of the character of thought at this period that it could employ a principle that carried it beyond its own ultimate unit, and yet never enquire whether the process was a mere dividing of matter or a revelation of the nature of thought and its categories.

In the construction of the world out of the atoms Epicurus does more to tell us how it was *not* done than how it was: his whole object is to show that design has no share in the work, there is no awful Power guiding and controlling things: nature manages its own affairs in perfect contentment, and this spectre of a Providence is nothing but the creation of the human imagination. Out of dead matter comes life, and out of life when it is sufficiently advanced comes consciousness.

[1] *v.* Note, p. 239.

Lucretius thinks that the phenomena of deep sleep and swooning prove that life is motion, and it must be allowed that he does not compromise his orthodoxy by any truck with the sub-conscious; but regarding the motion of matter as the substratum of conscious life, he consented when he lost hold on consciousness to drop back into the region of moving matter. The soul and the body form a unity, so that the dissolution of death is annihilation of the Self. This dreary prospect seems to have been a comfort on the whole, both to the Greek and the Roman philosopher, which seems to be a sufficiently severe expression of their views on the charms of the life they led on earth!

(*c*) On the border line, none too clearly defined, of the physics and the psychology, comes the question of the constitution of the soul, which we ascribe to the psychology because the chief interest centres on the question of the thinking part. 'According to the statements given both by Diogenes Laertius and Lucretius, the soul is a complex of elements from air, fire, and wind, and a fourth unnamed element. The last, which is the differentiating constituent of the mind, suggests that it is postulated by the feeling that there is more in the psychical than physical analogies altogether explain. And further, the introduction of air, fire, and wind suggests that Epicurus supplements the stricter atomic theory of Democritus by additions from the early physicists who identify the soul with air, or fire, or wind; and from Aristotle, in whose system the combination of the four principles of cold, hot, wet, and dry played

a main part, as explaining the processes of nature.' The first elements are to be taken as composing the anima, the fourth constitutes the animus. This animus is the seat of will and thought in Lucretius. The will we know, on the evidence of direct experience, is free; but it should be noticed in connection with what is said above, that its action begins in the heart. Epicurus seems to have regarded the breast as the seat of the rational soul, a distinctly retrograde movement after Democritus had placed it in the head.

With regard to the psychological activities, these must be interpreted in a materialistic sense. The secondary qualities have a material counterpart in the existence of the finer particles which are the cause of their perception: even the gods are known by effluxes. 'This doctrine of sense-perception is in a way only part of a larger doctrine which has important and direct bearings on the moral theory. In the first place, not merely do the skins shed by the objects around us meet the eye now; but even long after the objects to which they may have belonged have ceased to exist, these phantom husks float about the world. Thus it happens that the forms of the departed may visit us long after their decease.' Thus Epicurus combined with his denial of spiritualism as a theory of the existence of disembodied personalities a materialistic spiritism to account for ghosts. This is another instance of the way that physical theories may be dictated by extraneous ideas, and is really an example of the practical application of the view that ethical considerations come first. For the advantage of the

view is that it permits those visions of gods and divine beings which come to us in the night seasons, and brighten our world with pictures of a blessedness above and beyond our present attainments. How such ideas could be of use to us as moral incentives if we realised that the beings so revealed were not personal, is a question we naturally ask now, but get no answer from Epicureanism.

On the whole we may characterise this as a theory of imagination. In it the intellect gets little attention: even the 'imaginative impressions of the intellect' are to be taken as literally impressions. If they are real they are effects, and all effects have a cause which expresses itself in motion and must therefore be in some sense material. The only concession allowed to the intellectual impressions is that they point to agents more subtle than those which appeal to the senses. In one respect we have traces of a less materialistic view of mental processes. A certain degree of mental activity is implied in the concession that we can form for ourselves fresh ideas by 'new syntheses of sensations'; but the suggestion is worth very little so long as we are not expressly told whether this is or is not more than a secondary movement of the particles of the mind and purely mechanical. It avails nothing to say that they are voluntary, for we have already seen that any talk about the will carries us away from Epicureanism if we venture to think of it as other than materialistic in its nature.

I will close this summary of the main features of Epicureanism with a passage from the work to which I have already referred again and again: it

expresses what I take to be the truth about Epicurus in words that cannot be bettered.[1] 'If we have rightly understood Epicurus, he has simply ignored the ego and consciousness and turned solely to externality. He has adopted the attitude of science and not of philosophy. He has fairly enough employed the ordinary conceptions of matter to explain the processes of growth, nutrition, and sensation. If not an adequate mode of conceiving these processes, it has, at least for most minds, the merit of affording an easy and simple rationale of them. But as a philosopher he should have gone further. His only answer, however, to the question, "What are we?" is, that we are what we see, and, if our vision were expanded, might see. Each of us is an object of sensitive and intellectual vision: of the other fact that each is a subject, he says nothing. And by a subject is not meant merely that each of us is active as well as passive. For that matter the same may be said of every piece of corporeal substance in the universe: activity and passivity are the very characteristics of existence in its every shape. But in each of us there is the further element of consciousness, sentiment, feeling, will, and knowledge. Of this Epicurus has no other explanation than to say that it is nothing separable from certain combinations of molecules, and may even be treated as a mere aggregation of ethereal atoms.'

IV.

Between the days of Lucretius and the age of Gassendi lie seventeen hundred years filled with

[1] W. Wallace, *Epicureanism.*

the strife of minds and marked by much real progress. The historians of philosophy have linked together its different epochs, and he who would comprehend how much was done in that time to solve our human problems must turn to the pages of the professed historian. He will find there two main influences controlling the whole advance: on the one hand, the theological and speculative thinking of the patristic and scholastic periods: on the other, the scientific trend of thought which is most marked where Arabian influences predominate. These lines tend to converge, but there are certain well-defined conditions which make Faith and Science at present incapable of harmony. Under these conditions, equally predominant in modern times, the two parties present themselves as rival claimants for the different areas within the Kingdom of Thought: tract after tract was claimed and lost or won by the alien forces of reason, experience, or science. The real difficulty for Dogma arose from the fact that it had assumed control over regions of thought in which its forces could never hold their own: its losses were rarely such as could endanger its final stronghold; but every proof of decaying power was regarded as hastening the final catastrophe. In the mean time the two claimants establish a right to two kinds of subjects: science claims to rule on all that can be presented to the senses, dogma on all the hyperphysical realities. With the main classes thus determined, the discussion turns on the question as to what is to be included under either head. Slowly but surely the content of dogmatic philosophy

is drained away until a daring spirit like Bruno openly declares that the Bible is meant to teach morals only—not physics. The growth of a non-dogmatic philosophy is followed by a growth of the spirit of enquiry itself. At first the opposition to dogmatism takes the form of confronting theory with fact; this especially affected the authority which grounded itself on Aristotle as one who is above criticism, and proved most damaging wherever the investigation of nature came into collision with dogmatic deliverances on what ought to be or happen in the physical world. As typical of this collision between observation and groundless theorising Galileo may be cited. But while we speak of this as an awakening and as the triumph of physics over metaphysics, it is necessary to remember that the spirit of critical enquiry was not yet freed from the matter to which it most naturally allied itself: it was universally regarded as applicable to all matter alike. A vigorous mind like that of Valla might carry critical principles from the sphere of the sciences into history: a Montaigne might arise to suggest that even Christianity was not beyond criticism; but it was still possible, or rather natural, for men to feel that the hidden mysteries were a thing apart, that the realities of faith must remain behind the veil of the temple. For this reason it is incorrect to suppose that those who still acknowledge the rights of Faith are necessarily insincere, merely compromising their beliefs to avoid public censure. Much that is commonplace now was boldly original in the sixteenth century; and the boldness of

originality is not to be measured only by the extent to which physical safety is jeopardised: it must be measured also by the mental strain which it involves and the feeling which comes to every sincere mind that the opinion of the many may have more truth than the individual perceives. The foolish can have the courage of their convictions and rush in where the angels have feared to tread: the wise find their courage more severely taxed in the attainment of convictions. Where the struggle ends in some grand renunciation it gains our applause: where it ends in the belief that neither extreme is right we feel that it is less noble, less brilliant, and too often do injustice to the temperate soul not knowing that its refinement is of fire.

Such was the age in which Gassendi appeared, tinged already with a deeper scepticism, but on the whole not yet grappling with the final questions. If we may judge from the face portrayed in the Frontispiece of the edition of 1658, he was a genial kindly soul, not given to brawling but yet filled with the temper that resists wrong. In the controversy with Descartes he showed his qualities explicitly: at first he shuns the arena: once engaged, he stiffens against the onset of the enemy; his temper rises with the progress of the battle, yet never so as to confuse hand or eye: the opponent grows impatient, speaks hastily and rashly, but he sharpens the pen again and pursues without swerving the relentless analysis. Such was the man when pitted against a worthy foe, yet it was peace he loved, not war. His Epicureanism was of the lofty type: ease and pleasure have their rights,

but they exist only as parts in a life that is unified by a great purpose: they are the condimentum vitae; not the things on which we live, but the temper that leavens the whole. Such a frame of mind is only distinguished from Stoicism by great liberality in the interpretation of life and a greater ability to compromise. Some spirits break rather than bend: his could bend in season, and when after the strife Descartes came to him in days of sickness as a friend, he thought it no shame to forgive and to forget.

The facts of Gassendi's life are well known. Born on Jan. 22nd, 1592, at Champtercier, near Digne, in Provence, he went to the College of Digne at an early age, and, like many of the great thinkers of his day, combined linguistic with mathematical studies, and was equally successful in both. He must have been something of an infant prodigy, for in his sixteenth year he was invited to lecture. From Digne he went to Aix and studied philosophy under Fesaye, returning in 1612 to Digne as lecturer in Theology. Four years later (1616) he became Doctor of Theology and was ordained the following year.

Gassendi had now definitely entered the Church; but from this time his interest in Theology seems to have waned. He returned to Aix for a short time to lecture on philosophy, and though appointed to a canonry at Grenoble, continued to devote himself to the reform of Philosophy. In 1624 he was persuaded to publish his criticisms of Aristotelianism, a work which had its origin in the criticisms which he was in the habit of appending

to his formal expositions when lecturing at Aix. The *Exercitationes Paradoxicae adversus Aristoteleos* were never finished. In this year (1624) Book I. was published, and a fragment of Book II. was afterwards added in the collected works. A note appended to this Fragment tells us that the author abandoned the work after reading the *Peripatetica* of Franciscus Patricius. The part that was published aroused considerable animosity, and drew public attention at once to the author's abilities and mental attitude. Originality was not Gassendi's strong point, and he showed in this work that his strength lay in combining the ideas of others so as to make them more effective. In one respect the work marks an epoch in his life: henceforth his attitude toward Aristotle is defined by the declaration that the Stagirite is to be taken as guide but not worshipped as master and lord. In this, as in other respects, his aim is not to be 'aut nimium credulus aut parum pius' (VI. 172). While the work of Patricius relieved him from the necessity of pursuing these critical essays, he was also enlightened by their effect. He now saw that a merely destructive criticism did little but raise the dust. The true answer to existing systems could only be made in another system which should include in itself the whole range of human activity and compel the thoughts of men to look at the Universe as a whole. Thus began the scheme of the *Syntagma*, on which at least twenty years of labour were expended. With a training in mathematics supplemented by considerable knowledge of the cognate sciences, of medicine also and such biology

as there was, Gassendi was naturally attracted to the idea of developing the content of the universe as subject of thought.[1] He was struck with the difference in value between an abstract and an applied science; and theory abstracted from the living world seemed to him to have all the inutility of numbers that are multiplied for the value of multiplying, without application or objective reference. Such a science as anatomy elicits his fervent admiration, demanding as it does the highest development of method with a perpetual relation to the actual thing.

The year 1624 then was one of great moment, but no results were to be seen for many years. In 1628 Gassendi was travelling in Flanders and Holland with his friend Luillier. In 1631, at the request of Mersenne, he undertook the criticism of the mystical doctrine of Fludd. In 1633 he became Provost of the Cathedral of Digne, and shortly after began his travels in Provence with the Duke of Angoulême. In 1645 he was appointed Professor of Mathematics at the Collège Royal, Paris, but had to resign in 1648 through ill-health. The disease of the lungs from which he had long suffered soon became acute, and he died at Paris in 1655. The treatment of the disease seems to have been peculiarly perverse, and Sorbière speaks with much

[1] The following anecdote given by Sorbière illustrates Gassendi's love of first-hand evidence: 'ut suspicionem autem prorsus amoliretur quam de canali Cholidocho habuerat, quem Chylodochum dicere maluerat, equos, in quibus omnino deficit, introspicere voluit. Et memini offendisse me aliquando euntem cum Martello, saeviente admodum hieme, ad loca illa in quae deportari solent viarum purgamenta et trahi equorum cadavera quae plura, soluto pretio aperiri jussit' (Gassendi, *Op. Omnia*, vol. I., Preface).

bitterness of the persistent way in which the medici continued to bleed the exhausted patient.

Between the years 1624 and the date of his death, Gassendi published writings of three distinct types. First, the critical writings include the examination of Fludd's philosophy already noted (1631), and the attack on the Cartesian doctrine in 1642. As a critic, Gassendi has a keen eye for weak points, and a convincing style of attack: his natural faults are less in evidence here than anywhere. 'Il est difficile de traiter les discussions philosophiques avec plus de clarté, d'agrément et de naturel: la polemique de Gassendi, sauf peut-être un peu de rhétorique, mérite encore aujourd'hui d'être proposée comme un modèle.'[1]

The second class is that of the Lives, which were famous in their day: the *Vita Peireskii* was translated in English, and had a considerable vogue.

[1] F. Bouillier, *Histoire de la Philosophie Cartésienne*, quoted by Thomas, p. 14. Thomas also quotes the following address to the 'Lords of Mount Parnassus,' written by Boileau, which gives some interesting sidelights on the opinions with which the *Exercitationes* were received: 'Supplient humblement les maîtres ès arts, professeurs régens de l'Université de Paris; disant qu'il est de notorieté publique que c'est le sublime et incomparable Aristote qui est sans conteste le premier fondateur des quatre premiers éléments, le feu, l'air, l'eau et la terre . . .; et quoique pendant plusieurs siècles il ait été maintenu d'un commun consentement dans une paisible possession de tous ses droits, néanmoins depuis quelques années en-çà, deux particulières, nommées la Raison et l'Expérience, se sont liguées ensemble pour s'ériger un trône sur les ruines de son autorité; et pour parvenir plus adroitement à leurs fins ont excité certains esprits fâcheux, qui sous les noms de Cartistes et de Gassendistes ont commencé à secouer le joug du seigneur Aristote. . . . Ce consideré, Nosseigneurs, il vous plaise ordonner . . . que Gassendi, Descartes, Rohant, etc., et leurs adhérents seront conduits à Athènes et condamnés d'y faire amende honorable devant tout la Grèce. . . .' (p. 9.)

The peculiar characteristic of Gassendi's work in this direction is the easy way in which the whole is seasoned with genial humanity.[1]

In the third class may be reckoned the strictly philosophical works. Though the work *De Vita moribus et doctrina Epicuri* is a Life, and the notes to the tenth book of Diogenes Laertius are critical, they may both be reckoned as part of the working out of an Epicurean Philosophy. They stand in close relation to the *Syntagma*, which is the final and all-embracing statement of his philosophy. As this is to be the subject of the following pages, only a remark or two need be made here. The recorded judgments of the value of Gassendi's work vary largely. Some think he has practically no place in the history of philosophy: others regard him as the forerunner of such modern philosophy as concerns itself with the empirical rather than the idealistic line of development. In my opinion there is no fairer estimate of Gassendi than that which Ritter gives in his *Geschichte der Philosophie* (vol. x. p. 544). He says: 'Durch bedeutende Erfindungen glänzte er nicht: dem neuem Ent-

[1] 'Gassendi was one of the first after the revival of letters who treated the literature of philosophy in a lively way. His writings of this kind, though too laudatory and somewhat diffuse, have great merit. They abound in those anecdotal details, natural yet not obvious reflexions, and vivacious turns of thought which made Gibbon style him, with some extravagance certainly, though it was true enough up to Gassendi's time: 'Le meilleur philosophe des litterateurs et le meilleur litterateur des philosophes' (*Encycl. Britt.*, 'Gassendi,' vol. x.). Ritter (*Geschichte der Philosophie*, x. 544), speaking of Gassendi's encyclopaedic knowledge, says, 'Nicht ohne Grund hat Bayle von ihm gesagt, er sei unter den Philologen der grösste Philosoph, unter den Philosophen der grösste Philolog gewesen,' which looks like the prototype of Gibbon's remark.

wicklungsgange der Wissenschaften hatte er sich doch nicht mit Entschiedenheit angeschlossen; gegen das Copernikanische System hatte er noch seine Zweifel: die theologischen Fragen will er zwar nicht der Philosophie beimischen, weil wir in dieser nur dem Lichte der Natur zu folgen haben' (544). For some things the authority of the Church is final: in the rest there is freedom: in philosophy as such there is no one that must be taken as a final authority; his method of exposition belongs to the earlier style in which all the authorities are reviewed before a decision is made: he seeks a middle course between scepticism and dogmatism. He might indeed be reckoned among those who had revived ancient systems in the earlier period (this refers to Ritter's 'periods,' of which the last brings the reader down to the reform of philosophy by Bacon) but for the fact that his work is grounded on the reformed methods of Bacon and 'ein bedeutendes Glied für die systematische Entwicklung der neuen Philosophie abgegeben hat' (545). This is an accurate definition of Gassendi's position, and shows that Ritter knew the actual contents of the *Syntagma* at least. Its truth will be more apparent when the summary of the *Syntagma* has been read and the question of Gassendi's materialism can be discussed in the light of his own statements.

PART I. LOGIC

LOGIC

I.

Logic is defined by Gassendi as the science of intellect 'qua veri sequax.'[1] Its rules, being general, conduct to all knowledge, not merely the knowledge of nature, but knowledge of every description.[2] The term Logic Gassendi connects with Logos, which denotes the inner conversation of the mind, of which Ratio is a species.

Logic, then, in the first instance is the science of all mental operations that are in any sense organised. This science may be Dialectic, Organic, or, thirdly, Logic in the narrower sense. Logic in the widest sense is ars cogitandi; as Dialectic it is ars disserendi; as Organic it is ars dirigendi actiones mentis: while the ars Logica in the narrower sense is canonica or ars veri et falsi diiudicandi. This second use of the term Logic is confined to the ars bene cogitandi, which is held to be different from the ars cogitandi, and identical with the ars ratiocinandi. This is the real Logic as usually under-

[1] I. 31. 'objectum, seu tanquam scopus Intellectui propositus sit Verum: objectum, seu scopus Voluntati propositus sit Bonum.'

[2] I. 31. 'Quanquam et quia Regulae huiusmodi generales sunt, ideo inservire intellectui non modo ad scientiam naturae, sed etiam ad omnem omnino cognitionem possunt.'

stood, and the branch that demands our serious attention. Bene cogitare comprises bene imaginari, proponere, colligere et ordinare: and in accord with these our Logic will comprise the subjects of Imagination, Proposition, Syllogism, and Method.

The action denoted by the verb 'imaginari' is that of forming an idea, also called species, notio, praenotio, anticipatio, or conceptus. The ideas present themselves to the mind as soon as the object is named, and we, as it were, see right into them.[1] This intuitive perception we call simple imagination, because it is limited to the mere image of the thing without affirmation or negation. The idea is identical with the phantasma. The proposition is an enunciative judgment: colligere denotes the illative judgment; while the correct treatment of a number of judgments in related syllogisms constitutes the ars bene ordinandi.

II.

Logic is in the first instance Natural. Men had thoughts before they evolved any method of thinking, and probably even in the earliest times there was some method of thought even if there was no thought of method. The serpent in the garden of Eden doubtless used subtle arguments; but these primary forms of Logic are of no serious importance: we may therefore pass them over, and confine our attention to Artificial Logic.

The earliest Logic in the proper sense is that of Epicurus. Zeno's Logic was purely eristic, and a

[1] I. 33. 'nam simul ac res nominatur, obversari nobis in mente experimur illarum imagines, in quas veluti intuamur.'

non-syllogistic method. Epicurus has been accused of despising Logic, but it was really only the Logic of the Stoics which he rejected. When he dropped the term Logic for the name 'canons' it was only the name that he really changed: 'nomen rejecit rem retinuit' [I. 52].

All questions, said Epicurus, are either about things or words. When the question is about things a criterion of Judgment is required. Things may be classified as (*a*) naturales and (*b*) morales. In the case of res naturales, we require sense and mind: for res morales appetitus is required. As there are three faculties, namely sense, mind, and feeling, we have three criteria, namely sensation, anticipation, and passion.

The term sense denotes both the faculty and the function: as a criterion it denotes the function primarily, for we judge by the perception of the senses. The anticipatio is the image stored in the mind; the passio is the pleasure or pain which controls choice. These will be better understood if we quote the canons.

Canon i. Sensus nunquam fallitur: ac proinde est omnis sensio omnisque Phantasiae seu apparentiae perceptio vera.

Canon ii. Opinio est consequens sensum sensionique superadjecta in quam Veritas aut falsitas cadit.

Canon iii. Opinio illa vera est cui vel suffragatur vel non refragatur sensus evidentia.

Canon iv. Opinio illa falsa est cui vel refragatur vel non suffragatur sensus evidentia.

Canon v. Omnis quae in mente est anticipatio

seu praenotio dependet a sensibus: idque vel incursione, vel proportione, vel similitudine vel compositione.

CANON vi. Anticipatio est ipsa rei notio sive definitio, sine qua quidquam quaerere, dubitare, opinari, imo et nominari non licet.

CANON vii. Est anticipatio in omni Ratiocinatione principium, quasi nempe id ad quod attendentes inferimus unum esse idem aut diversum, conjunctum aut disjunctum.

CANON viii. Quod inevidens est ex rei evidentis anticipatione demonstrari debet.

These eight canons are the basis of the theory of knowledge, in so far as one is given us. We start with a blank mind capable of bare sensation: the evidence of sense is one against which there is no appeal.[1] In the fifth canon we have some new terms: 'incursio' denotes the entrance of an idea as such: proportio is the creation of an idea, *e.g.* of a giant, by extending the idea of a man; similitudo is construction of an object not seen by analogy with one we know; lastly, compositio is the voluntary union of ideas such as we perform in constructing the notion of the centaur. In the sixth canon the phrase 'notio sive definitio' covers two aspects of the anticipatio. As a mental image

[1] 'C'est en s'appuyant sur ces déclarations, d'ailleurs formelles, que les logiciens de Port-Royal et beaucoup de critiques à leur suite, ont rangé Gassendi parmi les sensualistes. Nous verrons bientôt ce qu'il faut penser de ce jugement lorsque, nous plaçant non plus au point de vue psychologique, nous étudierons de plus près la formation de nos connaissons, et chercherons à déterminer avec plus de précision le rôle exact des deux facteurs dont elles dépendent: l'expérience et la raison' (P. Félix Thomas, *La Philosophie de Gassendi* (Paris, 1889), p. 38). *v.* p. 13, note.

the anticipatio is that visualizing of an object which we perform when we hear a name significant to us. This not being the product of a present object, is producible at will and is that which we recall and mentally survey in framing a definition. A verbal definition is a secondary product and not necessary except for one desiring to communicate his ideas. The essential thing is a formal notion or a notion described and accurately delimited;[1] and this is what Gassendi really wants.

III.

The remaining canons, ix. to xiv., are rules for practical choice and clear speaking. Upon these there follow summaries of the works of Lully, Ramus, and Bacon.

The second book opens with the question of the nature of that Truth which is considered to be the end of Logic.

Truth is for Logic an end which is external to it. The internal end for Logic is right thinking; but right thoughts are higher and better than this: Logic prepares the mind, and the end of this preparation is attained in applied thought. The common distinction made between 'logica docens' and 'logica utens' expresses this point. The former is abjuncta a rebus, the latter conjuncta cum rebus. It is only the latter, the concrete applied logic, that concerns us at present. The Truth whose nature we are pursuing is truth of judgment. There is a truth of existence expressed

[1] I. 54. 'impressa quaedam animo rei definitio': 'nisi talem quampiam *animo deformatam* habeamus.'

in the formula 'everything is what it is'; Gassendi recognises that reality must always be real, and a picture is not primarily 'falsus homo' but 'vera effigies';[1] on the other hand, he clearly does not suspect that the existence of which he predicates truth is always a being for mind. To Being as it is for thought belongs another kind of truth, truth of judgment, which is the agreement of judgment with fact.

Gassendi is now grappling with a difficult subject, and allowance must be made for the crudeness of the position on account of its novelty. Gassendi's aim is to reach a common-sense position. It appears to him that everything is what it is in itself: like all other defenders of this point he goes upon the tacit assumption that the phrase 'a thing is what it is' means a thing is for itself what it is for consciousness. As yet the animistic vein is not quite explicitly eliminated from the world of nature as we know it: the object is not properly conceived as always relative to mind; still less is the object as related to mind expressly distinguished from the thing as a further ultimate reality. But with all its crudity the theory of Gassendi commands respect as a straightforward treatment of the world of daily life. The primary dogma that 'everything is what it is' is supplemented by the notion that sense shows us everything as it is. There is therefore no thought of the bodily medium being itself the destroyer of all knowledge: the immediate relation is the psychic atom out of which the fabric of knowledge is built, and is itself irresolvable and wholly

[1] I. 67.

real. Immediate relations are, however, not always possible. Things are not all of the same kind. Some are 'manifestae,' and with them we have no trouble; others are 'occultae,' either 'penitus,' 'natura,' or 'ad tempus.'[1] The first are hopeless: the last may be left for Time to reveal: the second form the sphere which it pays us to further examine. It follows from this division that there is an unknowable; but that which is unknown is so by reason of its own nature, not by reason of any defect in us. The example given is the knowledge that the stars are even in number: the unknown is in this case the answer to a problem, and the knowledge that there is an answer depends on a disjunctive judgment, 'stars are either odd or even.' It would seem as though, if this is the type of the unknowable, the unknowable 'penitus' is always a case of the 'unknown ad tempus.' The 'res occultae natura' are those which can be reached by inference: as, for example, the existence of pores in an apparently continuous surface deduced from the excretion of sweat. To reach these truths which lie below the surface we require a criterion, or instrument.

Properly a criterion is a standard of judgment, as Gassendi recognises, but it is also employed in the sense of instrument. He divides criteria into (1) those by which we live, and (2) those by which we learn. The former are standards, such as 'lex patriae,' 'consuetudo,' and the like, together with the moral tests of Epicurus, pain and pleasure. These do not really belong to Logic, which is

[1] I. 68.

concerned with the second class. This is subdivided into (*a*) mechanical, and (*b*) natural criteria. The former subdivision includes the foot-rule and instruments of that kind; the latter contains 'id per quod' and 'id secundum quod,' namely the faculty and the function of the faculty. Some add to these a third, 'a quo,' and define it as the mind. But while for ascertaining the weight of a thing we require the scales, the poising of the scales, and the man to record the result, and also for knowledge we require the sense, the function of the sense, and the mind that knows the result, the third is in both cases not a criterion, but a judge.[1]

IV.

Now that we have determined the nature of the world we confront and the criteria available for its discovery, we must explore the question of the possibility of knowledge, for that has been more than once denied.

The Sceptics assert that man knows nothing in the sense that he cannot penetrate into the inner beings of things. The Dogmatists, on the other hand, declare the criteria of sense and intellect to be absolute: everything can be known through them. Both the schools err from excess, and the truth lies in the golden mean: some things are known, and truly known, while others are obscure and do not admit of more than probability. Truth must be regarded as always possible, but not always actual: what we do know is truth, but at the same time we cannot be said to know all truth.

[1] I. 69. 'non criterium, est enim potius crites.'

A difficulty arises here which Gassendi does not seem to suspect. If we do not know all that might be known, how does the ignorance arise, and how is the present knowledge affected by the absence of further knowledge? Moreover, what do we require to make our knowledge more complete? Is it more system or more senses? Clearly if the whole is regarded as a growing system, it is difficult to avoid the conclusion that no one stage is in itself finally true. On the other hand, if we imagine that the world around us contains forces which appeal to us in vain because we have no senses that can respond to them, knowledge is bound to remain cramped and imperfect for all time. The atomism of Gassendi's standpoint now becomes obvious. He thinks that a piece of the truth is at least truth. The system of truths, then, only differs from the individual truths in respect of quantity. This point can be made clearer when we have further considered the nature of knowledge.

In opposition to Gorgias, Gassendi asserts that there must be something and some truth. Appearances are admitted to be true: it is the occult truths which give rise to doubt. To penetrate into the occult truth we must advance by means of the known to the unknown. A fact which is known and used as the key to further knowledge is called 'signum, medium, seu argumentum.' For example, in the sentence 'if the sun shines it is day,' the signum is 'if the sun shines.' Following Aristotle and Quintilian,[1] we divide the signa into (1) necessary and (2) probable. The necessary signa are either (*a*)

[1] I. 81. This equals the distinction of τεκμήριον and σημεῖον.

indicativa or (*b*) commonefactiva. When the signa are indicativa they prove the existence of the occult reality, as, for example, when sweat is taken as a proof that pores exist in the skin. The commonefactiva belong to the class of 'res ad tempus occultae.' In this case both the objects concerned are possible objects of experience. When a man sees smoke he infers the presence of fire, and can proceed to verify this by actual experience. It is not this but the former case that the sceptics attack. The formula for this is, 'If *A* is not, then *B* is not': hence given *B*, *A* must be posited. The question therefore amounts to this: can we have a perception that is not a sense-perception, and none the less true? Gassendi thinks that we can. The signum is a sense-datum, and must be given first; but it has value only for a mind that perceives and grasps it, so much so that the mind is justified in revising and correcting its sense-impressions. The position of the Sceptics that experiences differ and there is no universal truth is refuted by the facts. For the experiences may differ, but in recognising the differences we practically admit that there are two fixed points, namely, the cause and the disposition of the organism which is affected. As knowledge is a relation the nature of the relation may vary, and this may lead to partial and confusing statements. We say 'the sun melts the wax': we cannot say that the sun is in its own nature 'melting,' any more than that it is 'hardening' when it hardens the mud. The underlying fact is that it radiates heat, which softens some bodies and hardens others according to their dispositions. Our limits are given at one end by the immediate cer-

tainty of sense, and at the other by the 'indubitata principia' of mind. It follows that single facts and true propositions are alike self-evident. If the intellect makes errors it also corrects them, and knows the pure truth of axioms.

The critical point of this logic is the determination of the relation of reason to sense. At first it looks as though this was a theory purely sensualistic, but the modifications introduced finally reverse that judgment. Gassendi's real meaning appears to be that experience gives us all we know; we may get out of experience much that is not apparent to the senses, but we must never suppose that we can by ourselves *make* experience: knowledge is a relation, and therefore a pure creative activity of mind is a sheer impossibility. Gassendi does not say that the mind cannot know much that the senses never reveal, or that we cannot confront experience with concepts derived from reflection: all he says is that however far we travel from the sources, there can be no truth or reality in thoughts that cannot be brought back to their contact with experience. Psychologically this is expressed by saying that the intellect is a supersensuous agent, which is in fact always allied to a sensuous organism.[1]

Gassendi thought Bacon and Descartes were both extremists. Bacon confined himself too much to the ars bene colligendi; his condemnation of the syllogism was wrong, 'cum in syllogismo sit re ipsa robur nervusque omnis ratiocinii': the syllogism is only a failure because our universal is generally formed 'ex propositionibus non satis perspectis.' Descartes,

[1] Cp. Ritter, *Geschichte der Philosophie*, x. 545-555.

on the other hand, inclined to weave experience out of his inner consciousness, to cultivate the ars bene imaginandi without due regard to the material (auxilia ad habendum veram germanamque rerum notitiam, non tam ab ipsismet per se ac in se explorandis rebus, quam a solo, ipsoque a suis dumtaxat cogitatis pendente Intellectu procedendum existimat, I. 90). This definite expression of opinion makes it clear that Gassendi was steering a middle course between contemporary forms of empiricism and rationalism (*v.* p. 134).

Gassendi has now finished defining his position with regard to the relation of the mind to its world. The position is obviously modelled on Aristotle, and as was noticed above, is in a sense atomistic. A very significant remark is to be found in the answer to the Sceptics, who argued that, if a thing appears differently to different people, no one appearance can be called the truth. Gassendi says that the truth lies not in the appearance but in the appearing.

Suppose an object appears to me to be of a certain colour, I cannot say that this is 'ipsissima qualitas quae sit in objecto,'[1] but I can say that this is the affection due to this object, or this is the relation which this object realises with me. The statement that the object is not red to you cannot make it cease to be red to me, while, on the other hand, the fact that it is not to you what it is to me, proves that it is what it is, for if there were no objective reality the fact of difference could not be explained at all. This view logically implies that the object is

[1] I. 84.

essentially what it does, or in other words, it is a 'possibility of action.'

Atomism necessitates the recognition of the 'thing' as a solid unchanging occupant of space. Whether it naturally leads to the rejection of the category of substance for that of function, to the change of the formula of the thing from what it is to what it does, is a question that confronts us vaguely, but with promise of growing clearness.

V.

The Logic proper of Gassendi is divided into four parts, and exhibited in the form of canons. The parts deal with the idea, the proposition, the syllogism, and method respectively.

The primary activity of the conscious being is Imagination, or the reception of an image also called idea. The idea is defined as the object of the mind when it thinks (quae nobis rem quampiam cogitantibus menti obversatur). All ideas come to us from the senses, and we must endorse the saying: nihil in Intellectu quod non prius fuerit in sensu (Canon iv.).[1] These ideas are supplemented by those which the mind constructs by its own activities.[2] From the activity of the mind we derive general ideas. Both

[1] How is this to be understood? In a letter to Valerius (VI. 151, dated 1642) Gassendi says: 'id ipsum est quod alii dicunt nihil esse in Intellectu quod prius non fuerit in sensu; insinuaturque interim ut in sensu praefuerint quae videntur nunquam transisse per sensum.' In respect of God he says: 'quas habemus species huiusmodi rerum, non esse absque analogia ad res, ut corporeas sic sensu perceptas.' This seems to interpret the formula as meaning 'all human thought is sensuous,' which is hardly half-way to Condillac.

[2] *v.* p. 4.

singular and general ideas are 'perfect' in proportion as they accurately represent the object, and accuracy is obtained by discriminating all the parts of the object, singular or general. So Gassendi praises Anatomy, Chemistry, and all analytical sciences as leading to accurate knowledge of particular objects. In the case of the general idea, he says it is more perfect according as it contains more distinct classes. The general idea of man, for example, is more perfect if it contains not only Europeans, Africans, and Asiatics, but also Americans. It is difficult, he says, to get the idea free from particular distinctions, but it can be done. The reader of Canon viii. will find it difficult to say whether Gassendi's universal is to contain all particular distinctions or be formed by neglecting them. Man, as a general idea, must be 'omnibus discriminibus absolutum,' but at the same time the universal concept cannot be gained by abstraction based on one individual, but results from that process of explicating the essential, which is grounded in the interaction of many particular ideas.

The Proposition is a union of ideas, and forms the second stage of logical process. It is true when the union it affirms is in agreement with objective reality. The objective relation is that of substance and attributes, and the Proposition unites substance and attributes. As the union objectively considered is sometimes necessary and sometimes contingent, so the judgment contained in the proposition is sometimes necessary (the opposite term being "impossible"), sometimes probable.

The syllogism is a nexus of propositions, and is treated by Gassendi in the ordinary formal way.

Method is three-fold: of invention, of judgment, and of doctrine. The method of discovery is either analytic or synthetic. It consists essentially in tracking down a middle term or connecting link. Suppose one is required to prove that man is a substance. Taking the subject man we may analyse it and show that it contains the notion of substance: or taking substance we may qualify it (synthetically) until we get that qualification which is identical with man. The process is obviously a resolution of the equation, 'Man = a substance,' in the form:

Man = rational living thing.
Some substance = rational living thing.
Man = some substance.

Gassendi's preference for mathematical methods would have been quite obvious without his particular reference to geometry.

The method of judgment is likened to proof in arithmetic when we combine addition with subtraction, and use them alternately to prove a result.[1]

[1] Gassendi uses this example to explain the distinction between logica utens and docens. To learn to count is merely to learn a method, good enough in itself but useless by itself, and only acquired in order that it may be applied to things. To go on with thought-processes in abstraction is like multiplying a number by itself ad infinitum; the result is *true* but *true of nothing*: hence he insists on the return to experience as being a process of verification. The inner significance of mathematical reasoning does not seem to have struck Gassendi; he merely sees that the assertion 'twice two is four' means that if two things have been given me twice I *ought* to have four; whether I have or not is a contingent fact that requires immediate experience for its verification. In both cases, mathematics and logic, we seem primarily to work with ideas divorced from things; but does this divorce extend to the ideas which are intuitively guaranteed? Gassendi apparently thinks it does, for even the idea of God is 'verified' in the content of experience.

The final verification is found in the criteria of sense and judgment in which we must finally fix our faith.

The method of doctrine or teaching 'begins with resolution, and proceeds by composition' (Canon v.). This is the method of all sciences, physical, mental, and moral. In addition to this simple rule Gassendi preaches clearness of language, clearness of division, avoidance of useless digressions, and the necessity of proceeding from the most common and essential elements to the more obscure.

PART II. PHYSICS

SECTION A

CHAPTER I

INTRODUCTORY

By far the longest part of the *Syntagma* of Gassendi is comprised under the title 'Physics.' Of the general nature of this work and its significance we must speak later; for the present we shall be content to follow Gassendi's order of treatment and reproduce his views on the various topics.

The Introduction is intended to clear our minds as to the character and range of the subject. The term nature is frequently used for two very distinct things. If used with an active significance it denotes a 'vis agendi,' a 'natura divina' which sustains and supports everything; if used passively it denotes simply the 'universitas rerum,' the totality of existing things. This distinction invites the use of two terms made famous by Spinoza, naturans and naturata. But terms live by their associations, and as Gassendi does not use either of these verbal forms, it is better to avoid them. Natura naturans would indeed distort the meaning of 'vis agendi' beyond recognition. In spite of the alternative phrase, natura divina, this active aspect of nature is in no sense God: the activity may be from God and in its nature divine, but nature and God remain

distinct realities without fusion of their being. The manifestations of this activity are the ordinary processes of life, including all that belongs neither to art nor chance, which are the complementary categories.

Nature as the sum of existing things may be regarded in an abstract or a concrete way. The true sphere of our Physics lies in this system of things, and the true keynote of our method is concreteness. Thales was the founder of the true method, because he first sought the explanation of natural phenomena in natural causes. To be scientific we must be immanent; our results will probably not be final, but none the less our end will be attained. That end is, according to Gassendi, ethical: he is never tired of pointing out that if we desire finality we labour in vain. The greatest lesson of past ages is that we too are doomed to be superseded. None the less we are not aimless or without an end: it is meritorious to do what we may, and as it is a duty so it is also a happiness to attain a knowledge of the world in which we live, and through Nature come to God. Of the limitations of our powers Gassendi has no doubt; with Bacon he finds in nature a subtlety we cannot compass. But he has no scepticism by which hope is numbed or enterprise chilled. It is the quantity not the quality of knowledge that suffers: what we can know is in its way true and final, and if we pass beyond it, the lower stage had its own reality in its own day.

To revert to detail, a scheme is given us in this introduction of the whole work.[1] It is to deal with

[1] Cp. p. xi.

(*a*) nature in general, (*b*) things celestial, (*c*) things earthly. The subdivisions of the programme run thus:

(*a*) De rebus naturae universe:
  (1) The world—its number, parts, disposition.
  (2) Time and place.
  (3) Matter, causal principles, qualities, origin and end.

(*b*) De rebus celestibus:
  (1) The heavenly bodies, their motions and the like.
  (2) Predictions based on these.

(*c*) De rebus terrenis:
  (1) Plants.
  (2) Animals.
  (3) Man and especially the soul.

This programme we shall follow as Gassendi has followed it.

I.

The discussions of the first section are prolix and contain chiefly refutations of views which are generally of theological import and belong to an age of thought so entirely superseded that they are no longer of any interest. We can therefore pass it over with a mere summary of conclusions.

The first question of the plurality of worlds was generally treated in an a priori and speculative manner for which it was peculiarly unfitted. One prominent argument of the scholastic divines asserted that an infinite God could not express himself in a finite world. The word here used is mundus, and must be taken to mean a habited or habitable globe,

as there is no question of the plurality of the heavenly bodies. The answer to such a 'trifling proposition' is easy but instructive. In the first place, the infinity of worlds might be successive, which is the more probable if we grant that the given world must perish. Again, it does not follow that an effect must be identical with its cause, and therefore, an infinite cause need not produce an infinite effect. Finally, the whole argument suggests that we can judge the Divine Agent by human standards, which Gassendi denies. Gassendi refuses to say that 'Deus propter excellentiam non immerito nihil vocatur'; the concept of God has to be formed through our concepts of all that is highest on earth, but the sublimation is carried far enough to justify the position that when regarded as active and real, God cannot be brought under ordinary categories of judgment.

Current opinion was divided between two views. Some upheld that each star was a world and these worlds were related to each other:[1] others maintained that there was a plurality of worlds, but each one dwelt apart, dissociated from the rest. In the second case it follows that we cannot know the others; while the former statement is a mere assumption, since we do not in fact know those relations. The assumption of relations was a pure deduction from the assumed unity of the whole, and was made valueless by the fact that the relations asserted to be actual were never revealed in experience. An entirely different proof was based on the assumption that the number of atoms was infinite and could only be exhausted by an infinity of worlds. These so-called proofs Gassendi

[1] I. 138.

rejects: his attitude is one of provisional scepticism based on commonsense. There is no proof either for or against, since the worlds if existent are certainly unknown.[1] He pours scorn on Lucretius for praising Epicurus as though a proclamation of endless worlds had broken down the barriers of human knowledge. Lucretius exclaimed in vain

'moenia mundi
discedunt: video totum per inane geri res.'

The one word 'video' reduced the whole sentiment to bathos: it expressed exactly what could not be done; and there is no gain in widening the realm of the unknown: it is not the number of possible objects that must be increased, but the powers of sense and constructive imagination as based on sense. To indulge an empty fancy in the ecstasy that the word 'infinite' too often inspires is harmful rather than advantageous: we must confine ourselves to what we know, and curb the imagination within the limits dictated by experience. In this reference at least Gassendi seems to have been clear on the distinction of unknown from unknowable, and to have felt the futility of asserting existences to which we have no relation.

II.

The fifth chapter takes up the question of the World Soul, a subject which has been discussed from time immemorable, and still retains something more

[1] I. 141. 'Nam fatendum est quidem convinci demonstrationi non posse, non esse mundos praeter hunc alios: quando profitemur potuisse et posse adhuc condere Deum alios innumerabileis. . . . At vero tueri aliunde plureis mundos reipsa esse, praeter rationem omnino est.'

than a merely historical interest. Gassendi's treatment of it is systematic and much more interesting than some of his other discussions.

The root of the question is the opinion that the world is an organised whole; not a 'totum inordinatum' like a pile of stones, but 'ordinatum' or constituted of organised parts.[1] This position is definitely though perhaps unconsciously advanced by the addition of the idea that these parts stand to each other in some relation other than that of mere co-existence in space: it is universally admitted that Earth, Sun, and Moon are interrelated (inter se affectae relatione aliqua sint). This advance in the doctrine really carries us over the crucial step from the view of the world as organised to the declaration that it is organic, from which an easy analogy brings us to the all-pervading soul.[2] It is this step that we must defend or repudiate. In spite of the example of the pile of stones, it may be possible to have an ordered Universe without all the implications of a universal soul.

The greatest advocates of the world soul are Pythagoras and Plato, supported by Aristotle to a certain extent, and the more recent 'chymici.' The outline of the doctrine shows that the Soul of the world was conceived as a very subtle substance pervading the Universe. Its nature is not simple but twofold, being composed of a purer and a grosser part, the latter being however

[1] I. 155.

[2] 'Plerique . . . fatentur esse vim quandam per totum mundum sic diffusam parteisque eius continentem cuiusmodi in Animali est Anima.'

'purissima' as compared with the grossness of corporeal entities. This forms a spiritual body which mediates the entrance of the higher part into the natural body.[1] These parts are called respectively Mens and Anima (*νοῦς*, *ψυχή*). The term anima then denotes *νοῦς* taken as conjoined to some material existent, and can be used in this discussion without further reference to *νοῦς* or mens per se.

The anima was defined by Pythagoras as a harmony, not of course in a material sense as we speak of vocal harmony, but in the sense of proportion of parts. We naturally ask what are the parts and what are the proportions, and we look to Plato's *Timaeus* for the answer. That exposition is taken by Gassendi to be the true statement of what the Anima Mundi meant to the original authors of the doctrine. Are we to accept this Anima or not? Such expositions as we have clearly indicate that it is an entity whose being is not exhausted in these analogical descriptions. To say it is a harmony is only to say that its nature can be thus analogically described. What is it in reality? If we take it to mean God there is no objection so long as we speak of him as

[1] This is Gassendi's interpretation of Plato's phrase, *νοῦν μὲν ἐν ψυχῇ, ψυχὴν δὲ ἐν σώματι* (*Timaeus*, 30 B). 'Stallbaum,' says Archer-Hind (*Timaeus*, p. 93), 'following the misty light of neo-platonic inspiration, says of *ψυχή*, media est inter corpora atque mentem.' In *Timaeus*, 36 E, we are told God constructed body within soul: hence *νοῦς*, *ψυχή*, and *σῶμα* were conceived as each including the other, like three concentric circles, with *νοῦς* comprehending *ψυχή*, *ψυχή* comprehending *σῶμα*. The relation of this to the view that '*νοῦς* is simply the activity of *ψυχή* according to her own proper nature' (Archer-Hind), is obvious if not orthodox: for *νοῦς* can think *ψυχή* but not vice versa, includes but is not included by *ψυχή*.

assistens, not pars, just as the pilot is in but not part of the ship. Similarly it may be a fiery substance (calor) if taken as immanent, not like the sun's heat, irradiated. This interpretation requires a further modification, inasmuch as the position is radically altered by using the term soul for a substance like calor. To use the term soul in any intelligible way is to imply certain functions such as generation and nutrition. These are essential to life as we know it, either in animals or plants, and without these the term becomes meaningless. But one world does not beget another, and therefore has no claim to be recognised as an animal. Neither has the world any functions of nutrition: Plato and the Stoics have indeed spoken of the stars as being nourished by exhalations from the earth, and the earth from the water of the moon, but these are idle fables: a commutation of parts there may be, but that is not properly speaking nutrition. Finally, the earth has no functions such as sight and hearing; and if we speak of the 'heart' of the world, or make it like a Cyclops with the Sun for an eye, these are pure metaphors! Why, then, is the world said to have a soul at all? The reason is, that without it we cannot explain how there should be individual souls. The only argument for it is a regress from particular to universal. Lactantius expresses this tersely: 'sic enim argumentatur: fieri non posse ut sensu careat quod sensibilia ex se generat. Mundus autem generat hominem, qui est sensu praeditus. Ergo et ipsum sensibilem esse.' This argument breaks down by generating its own contradiction:

for many things in the world have no soul, and it is equally possible to argue from them that the world has no soul. That which has soul derives its soul from the particular antecedent to which it owes its production and not to a universal entity. (Animam nimirum habet animal non ex totali anima mundi sed ex speciali anima quae aut in parentibus praeest. This applies not to anima as such only, but to any specific nature, *e.g.* of stone, I. 160.)

A second main argument is derived from the belief that the soul is the architect of its own body. Granted then that the world is an animal, it must have a Soul. As this argument assumes the World to be an animal, and deduces from that the presence of a soul, we must attack the assumption. This animal called the world must either be eternal or have had a beginning. If it is eternal, in what sense did the soul make it?—and if it was created, this must have been done by some agent other than itself. If it began, but not by creation, it was born either spontaneously or of parents, which means it was due either to chance or to definite purpose. In any case its cause is outside itself, and therefore cannot be its own anima. It appears then, that the theory has no support so long as we take the term soul exactly. If we take it to mean either God or a substance such as fire, we either go beyond the world for its soul, or we apply the term soul to material forms of existence in a way that will make havoc of our psychology.

III.

Some additional questions remain to be settled, but they are of minor importance. They comprise a discussion on the leading theories of the universe and their relative values, an enquiry into the beginning and end of the world, and a description of the known parts of the world. Of these the last requires no notice, being a mere description of the apparent place of things, *e.g.* the place of the air, of the water, of the earth, and of the heavenly bodies. This essay on physical geography applied to the universe belongs, with its complementary disquisition on the figure of the earth, to an age still near the times when the earth was thought to be flat, and may be consigned to the limbo of forgotten problems.

The three main theories of the world were those evolved by Ptolemy, Copernicus, and Tycho Brahe respectively. Of these Gassendi considers that of Tycho Brahe to be the best for reasons worth noting. Ptolemy's system is dismissed for not explaining the movement of the heavenly bodies in a satisfactory way: the Copernican system is most in accord with facts, but the sacred texts attribute rest to the earth and movement to the sun. Moreover, there is a decree bidding us take this to mean not apparent but real rest. Those, therefore, who respect the decree must approve and defend Tycho Brahe's modifications of the Copernican system. Here, as elsewhere, Gassendi's language implies reluctant acquiescence. He writes: 'Ideo superest ut tale Decretum reverentibus Tychonicum potius systema et probetur et defendetur'; and we can see through

the veil of orthodoxy that the author's heart is with Copernicus and the system which can so truthfully be called 'planius et concinnius.'

In dealing with the question of the world's beginning Gassendi is supported by Epicurus and the Bible. The doctrine of atoms implies a theory of creation, and therefore puts its adherents in opposition to Aristotle and the supporters of an infinite and unproduced world. But while support is thus gained for the theory of creation, the alleged method cannot be accepted. A blind concursus of atoms is not a method of creation that a good Churchman can advocate. Fortunately it can be rejected on rational no less than religious grounds. The world gives us obvious proof that it was made by design: this implies a cause, which must be outside it; and therefore production in time, for the cause existed before it produced the world, and the relation of before and after constitutes Time. Again, every part of the world is corruptible and perishing, and the whole must therefore be of the nature of the corruptible and have its own creation and deccase.

To understand this second argument, we must take it as an argument on categories.[1] The assumed question is, 'Does the world belong to the category of the infinite or the finite?' If any reason can be shown for including it under one category rather than another, the consequences follow without further argument. Gassendi's argument against the eternity of the world is based on cruder views than might be expected. He notes that the sea and the rivers

[1] Cf. p. 226.

continually reduce the land and even wear down the mountains:[1] none of this matter is carried up again, and therefore, if an eternity of time had really elapsed, the whole earth must by now have disappeared beneath the waters. This is a shamelessly eristic procedure for one who has just defended the spherical form of the world.

There arises from this proof of a finite world one problem which touches so nearly our views on motion that it must not be left unsolved. Aristotle had argued from the eternity of movement and the necessity of God's continual action. Gassendi's argument is also based on movement, for corruption and decay may be regarded as primarily movements and only apparent changes. It must also be borne in mind that there are three indestructibles, namely atoms, the void, and the universe. If the world is composed of atoms, and atoms never perish, it follows that the destruction of the world is neither

[1] 'It might almost be supposed that the following lines were written by one of our own contemporaries: they are, however, extracted from a chapter of Avicenna on the origin of mountains. This author was born in the tenth century. Mountains may be due to two causes. Either they are effects of upheavals of the crust of the earth, such as might occur during a violent earthquake, or they are the effect of water, which, cutting for itself a new route, has denuded the valleys, the strata being of different kinds, some soft, some hard. The winds and waters disintegrate the one, but leave the other intact. Most of the eminences of the earth have had this latter origin. It would require a long period of time for all such changes to be accomplished, during which the mountains themselves might be somewhat diminished in size. But that water has been the main cause of these effects is proved by the existence of fossil remains of aquatic and other animals on many mountains' (*The Intellectual Development of Europe*, Draper, I. 410). Gassendi at least affects a knowledge of Avicenna, and frequently refers to him.

more nor less than the dissipation of its material. Movement, then, would be eternal, and if the old material forms a new world with never a break in the history of its parts, why should this second world be said to be created rather than evolved, and why should not our present world be viewed as evolved from a former world or even a former condition of its own elements? It may finally be necessary to say that Gassendi never properly faced this problem, but he seems to have been conscious that such a problem was possible, and to have in some degree anticipated it. His first defence is the denial that time is dependent on motion. If time and motion are inseparable, they must be coeval, and motion is infinite, since it occupies all time: to deny the dependence is to assert a time prior to all motion, and thereby make motion a product in time. The second is contained in the assertion that the first cause need not be physical; in other words, a regress from motion to motion is not infinite, but terminates in a First Cause, by whose creative action motion itself first came into being. The fact that all motion is, as motion, one, and the term 'different motions' must be taken to mean motions of different aggregates of matter, does not compel us to regard the creation of motion as the imparting of one impulse to the whole: it is possible, and even more probable, that in the beginning many mobile bodies were created with internal force of movement. As God's relation to the world is purely external, and its movement is for him a 'pure relation,' his essence is not affected by either its becoming or its dissolution.

As we progress more and more with the Physics it will become more and more apparent how empty and vain are these arguments. They perhaps weighed heavily against those who taught that the world could never be destroyed, but would be purified and adorned with flowers 'ad puerulorum non initiatorum neque in caelum translatorum oblectationem.' But as serious philosophy they cannot stand examination, because Gassendi never makes it clear whether he is talking as a practical man of science or a theorist. His position is in fact metaphysical, and relies on pure reasoning. His real theorem, therefore, is whether the human mind can think its world and its series of causes as truly infinite. He would probably have decided that the infinite can only be thought by an infinite mind. Speculation of this kind is however quite out of place, for Gassendi never thinks of dividing mind and object in this way. The consequence is that, in spite of the logical and metaphysical character of the argument, the conclusions are purely physical. For Gassendi there are no antinomies of pure reason, and the problems of infinity never suggest a reconsideration of experience itself. So, in spite of the encouraging way in which Gassendi takes up time and causation as the fundamental points in the problem of infinitude, he gets no further than a dogmatic assertion that what is logically possible is physically actual. If we may say of any theory of reality that it regards the actual as necessarily thinkable, it would still be false to regard the thinkable as necessarily actual; and from Gassendi's point of view neither proposition is

defensible.[1] The whole argument is therefore irrelevant and useless: our world as a subject for scientific discussion is not affected by the conclusion; and the reader finds himself, after traversing a circle of argument, for all practical purposes exactly where he was before. It is impossible to suppose that Gassendi was not aware of this, or that these forensic disputes were left in such solemn isolation by mere accident. The practical part of the treatise looks forward: the theoretical serves a different purpose.

[1] Gassendi would allow both the assertions, namely—(1) Reality is wider than Thought; (2) Thought is wider than Reality. The former is correct, because knowledge is a relation, and there is no a priori reason why all the existent should be in that relation. Since the relation does not constitute the being of anything, that may be which is not thus related; in other words, the knowable may include the unknown (not unknowable) as well as the known. The latter is also correct, because we may outrun our data and assert our subjective (imaginative) constructions as real.

CHAPTER II

TIME AND SPACE

I.

THE second book of the Physics on time and place is so involved and subtle that its contents must be stated in Gassendi's own way before any attempt is made to formulate his views.

The title is peculiar and should be noticed. It runs 'de loco et tempore seu spatio et duratione'; and this duplication of terms persists throughout, adding to the difficulty of interpretation. Gassendi seems to have regarded the second pair as the universals corresponding to the particular or specific terms locus and tempus. He considers these two identical in nature, so that anything we say about space applies to time: we can therefore confine ourselves to the more intelligible subject of space.

The traditional philosophy divides all being into substance and accident, and declares that what is neither of these is nothing. Space however is a reality, and yet comes under neither of these heads. In face of the facts authority must be disregarded and a new classification be evolved. We must recognise as distinct classes

(1) Substances—quae per se sunt.
(2) Accidents—quae per aliud sunt.
(3) Time and Space.

This third class shares with the first the quality of being per se: they are therefore properly called substances, but the term substance always conveys the idea of corporeal existence, and is therefore objectionable unless a qualification is added. It is not incorrect to speak of an incorporeal substance, and this would meet the requirements of the case: as Aristotle used it of the mind and Epicurus of the void, it is not wholly without authority. Having settled this first step of classification, Gassendi attacks the categories. Quantity is the category that concerns us at present. Space falls under the category of continuous quantity. The tyranny of matter gave rise to the opinion that quantity was an 'accidens corporeum,' and as space came under the category of quantity it was also asserted to be corporeal. Corporeal, when applied to accidents, means 'dependent on a body.' Length, breadth, and weight clearly require a material something to which they can be referred. Space, according to Gassendi, does not: it is therefore more than a mere quantity, more than so much room: it is not only the place of things, it is a place for things, a difference that must be more fully discussed later. Space, then, may be defined as a quantitative reality independent of matter. The consequences and difficulties of this definition have now to be considered.

(1) The most obvious objection is that a quantity of nothing is nothing; but Gassendi replies that in this case the quantity is a quantity of Space, and space is something. If a body be removed from a given place, the space of that place remains. This argument is greatly assisted by the traditional

habit of obtaining a concept of matter per se by abstracting all form: if this is possible why cannot form be abstracted from all matter? It follows that the concept of the void is possible.

(2) As we may think of matter as reduced to nothing, we may also think of it as infinitely great: worlds may be infinite, and therefore space must be.

(3) As space has no faculties or actions, its adjectives must be purely negative. It is infinite because it is not finite, and incorporeal because it is not corporeal. It cannot be a substance in the sense that God is, else there are three equal substances, and the being of God is not superior to the being of space and time.

(4) The origin of space and time is an insoluble problem. Gassendi does not say this in so many words, but leaves it to be inferred. He merely remarks that to say some essences are not properly created by God is worse than admitting time and space to be uncreated—a tortuous method of escaping the dilemma.

(5) Space is imaginary, not in the sense of unreal or fictitious, but as requiring to be constructed by analogy.

The discussion thus summarised is followed by a division of space according as it is (1) outside the world, (2) dispersed among things, (3) collective. The first is space left for new worlds, and is required in order that God may not be limited in creating new worlds; the second is space as it occurs among bodies which do not change; the third is space as it is produced by loss of volume or contraction. This is technically called 'spatium coacervatum.'

These three kinds of space seem to be really three kinds of vacua: they are rather asserted than proved, and their assertion raises more problems than it solves.

II.

As Gassendi's doctrine of time is a mere appendix to that of space, it is necessary to form some idea of his views of space before venturing to consider those of time.

Following the hint given by Bernier in the Abrégé, we may take space and the universe to be complementary concepts. Space is infinite in three dimensions, and is the place of all things, whether already produced or existing only in the mind of God. The confusing element in Gassendi's treatment is its complexity. It is never quite clear whether we are treating space as a given reality which can be directly known or a reality which must be deduced. The statement that space is imaginary is extremely obscure. By imagination Gassendi always means a power of compounding elements given through the senses in such a way as to produce a new representation of some object not actually presented. If space is a pure quantity, its construction in imagination has no principle of limitation, and it will be the subject of an infinite process. Here there appear to be two errors which can only be explained through the tendency of Gassendi's philosophy to develope rationalistic features. The first error is committed when from the ancient argument that if a vessel is absolutely empty its sides must either collapse or preserve a distance between

them in which there is pure space, he infers that a pure space can be given. Here there is a wholly indefensible transition from the distinction of the concepts of space and matter to a distinction of their actual existence. As with the infinity of motion, so here in the cognate subject of space the logical conclusion is converted into a predicate of reality in a way that implies a metaphysic unfortunately not supplied by Gassendi.

The second error consists in supposing that we have any right to regard as valid of reality a process which is subjectively possible.[1] Gassendi undoubtedly commits this error because he uses the property of numbers or mere quantity to enable him to assert that our concept of space cannot stop at any given point but must advance indefinitely. This, however, is true of everything if taken abstractly in relation to quantity, and has no special application to space. The traditional problems gave a wrong turn to this line of thought by putting it into a form half concrete and half abstract. If a man going to the end of all things hurls a spear before him, what are we

[1] It is perhaps necessary to point out that subjective does not mean 'mental': there is no 'mentalism' at this stage of the history of thought: the subjective is 'the work of the mind,' and is practically always limited to the work of the *Imagination*. This is why we find so much confusion in the interpretation of philosophies which belong to this period of transition. It is frequently the case that the work of the mind as reason is considered unimpeachable, while the work of the mind as imagination is the source of constructions which may be, as we still say, 'put upon' things. The phrase here means that an imaginative construction is not necessarily *more* than imaginative. It seems strange that after his comprehension of the futility of abstract counting (p. 712) Gassendi should not have avoided this error. But Space, in spite of being a substance, so combines plurality and unity (for many spaces are one space) that Gassendi lost his way.

to think? Common sense replies that he was probably not at the end, but tradition says that it follows that an end of space is unthinkable, and the concrete reality of the spear gives the space, imagined as its place, a fictitious reality.

We have here, then, a complete confusion between the reality of our thoughts about space and the reality of the space about which we think. Gassendi does not know either how space originated in nature or how it has become known. When he describes it as form he speaks metaphorically; it is not a form either of sense or matter, but an independent reality; it is an immovable whole, otherwise a thing might move and take its space with it, and so not change its place even when moved. In a sense it must be nothing, otherwise two things are in one place, namely the thing and its space; on the other hand, it is a substance in relation to occupants of space. In some cases, *e.g.* God and the angels, the occupant is incorporeal. If a place is space occupied by a body, can an incorporeal being have a space, and if not, can it be and yet not be anywhere? To answer these questions Gassendi says space is 'quod res locata occupat'; hence the angels have their place where they are, and God is properly 'in se,' which appears to mean that He is but does not exist, has being but not spatial being.

This intricate maze of thought becomes entirely unintelligible unless we accept it as the expression of two views in one. In one part we are being told what Space is in itself, in the other what it is in experience. In the former aspect it is real, and that is all we know; definition, if any, must be negative,

and its nature must be assumed to be all that it is not irrational to suppose it.[1] Ultimate space is thus really a hypothesis which is proved to be actual, because without it we cannot understand the world of experience. The latter aspect concerns us when we deal with reality as known in the senses. Space, having no activities, cannot be known through the senses except 'ex parte rei locatae.' It is combination with the thing that makes space an object of perception and gives the required ground upon which imagination may work.[2]

III.

If Gassendi feels that space is an ultimate that defies exact analysis and almost baffles description, he is still more diffident about time. None the less he feels that his position ought to redeem him from blank despair. The words of St. Augustine sum up the views of one class of thinker;[3] to Gassendi they seem justified only as the conclusion of a false method. For if the corporeal is regarded as primary, and our category of substance is practically confined to the tangible, space and time alike become displaced from reality and drift away through the pages of speculation like homeless phantoms refusing burial.

[1] This is a definite logical principle derived from Epicurus, *v.* p. 3, Canon iii.

[2] Space, then, is perceived by sense in so far as it is given with body. The question might be asked, Would an animal, having sense only, perceive space? I imagine Gassendi would have no answer to that: the a priori objectivity of space and the possibility of a sensitive organism that did not think would both be endangered by its discussion.

[3] I. 220. Gassendi quotes from the *Confessions*: 'Si nemo ex me quaerat quid sit Tempus, scio: si quaerenti explicare velim, nescio.'

The rock on which Gassendi builds is good foundation: come what may, these two are real, and it is futile to try and explain away what we cannot escape.

The majority of what has been said about space can be transferred to time. The main conception being the same, only one chapter is devoted to a special discussion of time. Like space, it is a substance in its way, incorporeal in its nature and not in itself dependent on its content. The relation of space to time is to be understood by the analogy of corporeal entities; for as the corporeal has a permanent aspect, its extension, and also a successive aspect, its movement, so we have in the incorporeal sphere a permanent and a successive entity, which are respectively the place of all extensions and the place of all movements. As Space is really the Place of all places, so Time is the Duration of all durations; and as space has some unoccupied or potential places, so Time overlaps the known durations and has its 'void.' In opposition to the Epicurean view, which makes out that time would not be if there were no minds or things,[1] Gassendi holds to a lapse of time before the beginning of the world and between creations. He is really nearer the modern view than at first appears; for the Epicurean view did not make time a form of perception, but merely regarded

[1] I. 223. 'Jam vero neque Epicurus videtur posse dicere esse diem, noctemque aut longam aut brevem ab eo tempore quod cogitatione ipsi affingimus.' The reference is to Diogenes Laertius, x. Cp. I. 222. 'Videntur porro Stoici melius quam ipse Epicurus sensisse, reputantes Tempus tale incorporeum, quod per se esse intelligatur, non tale quod accidat rebus, eo sensu ut Tempus non foret, si res non essent, quae eo durarent, aut nisi etiam nostra mens durare ipsas cogitaret.'

it as dependent on its contents. Gassendi, on the other hand, considers that events derive their order from time, and considers that time must therefore precede change. In the case of space it seemed an easy matter to say that the annihilation of the thing placed was not identical with annihilation of the part of space which formed the place. If we are to preserve the analogy we must say that annihilation of change would not annihilate time. This Gassendi is prepared to say, but it is a hard saying. It would seem as though the assertion of time without change necessitated our regarding time as a permanent entity, which would sacrifice its essential distinction from space. Time moves without any doubt: it is however hardly like a stream: a better simile is that of the flame of a candle, which as it burns changes indeed, but in such a way as not to lose its identity, and so gives us a better idea of continuity and the retention of identity in difference.[1] The point which Gassendi wishes to emphasise is that, if time and change are identical, there is no background to define the movement. If a thing, when it moves, takes its place with it, it moves without change of place, which is nothing at all: similarly, if an event takes its time with it, the time-series is reduced to nothing, a reduction to absurdity which makes it necessary to say that the time is not the change, but the change is in the time. To this point Gassendi clings, but if we seek further

[1] I. 223. 'Appositum est magis comparare Tempus cum Lucernae flamma, cuius esse ita in fluxu consistit, ut quovis momento alia ac alia sit, et nusquam sit amplius quaecumque ante fuit, nusquam adhuc sit, quaecumque est futura.'

for some explanation of the permanence implied in this we can find no answer that satisfies. It is to be feared that, following the analogy of space, Gassendi thought of time as ultimately the sum of all times, and so the time of the universe. This comprehensive term substance was the shibboleth that reigned before the absolute, and it swayed men's minds to create concepts beyond their grasp. If my life falls within the life of the world, and that again within the life of the universe, it is not unnatural to picture successively widening areas of time corresponding to the span of each existence up to that last time of the Universe, and if we remember that the Universe is indestructible, it will follow that ultimate time and space are infinite indestructible realities. But what is the difference between ultimate time and any other time, and do we get nearer reality by getting further away from our experience? Gassendi seems to have omitted to think over the relation of time to our experience, and that in spite of the excellent hint in a passage quoted from Diogenes Laertius, where we are exhorted to notice not only days and nights, but also 'passionibus et vacuitate ab ipsis.' In the absence of definite information it must be assumed that Gassendi did with time what he did with space: he constructed a rational background to the data of sense, and thus furnished himself with a double theory, one part concerned with time as it is, the other with ultimate time as it might be if it were at all.

Gassendi proves puzzling to the thoughtful reader by his trick of abandoning one method for another. It is natural to expect that a rationalistic position

will be developed by deduction. Gassendi on the contrary makes no attempt to develope his theories at all, but simply returns to experience for a fresh start. For all practical purposes he has reduced time to a standstill, and the natural deduction is that the present is illusion. Far from accepting this consequence, Gassendi argues that as the present is real time cannot be nothing, and those who consider it to be nothing do so because they erroneously seek in the successive for that which is natural only to the permanent. This can only have one meaning: in the permanent the given points co-exist, and are capable of recurring in experience: in the successive there is no return. Man lives *in* Space, but he lives *through* time, and if reason compels us to think of both as wholes, that difference of our experience persists and makes it necessary to form a different conception of each whole.

The analysis of different kinds of time gives us the so-called real and imaginary times. This was the ancient distinction between the time given in actual experience (real) and that which was before the world (imaginary). This distinction Gassendi repudiates. His time is imaginary in the sense that his space was, and the real time is only one section of that. This shows the weakness of Gassendi's position: for however good his intentions he cannot avoid the conclusion that the time we experience and the time we represent in constructive imagination are identical: which amounts to saying that time is either not experienced at all or is experienced as a whole; but this would most likely be beyond Gassendi, though he would be quite capable of regarding All

Time as one object,[1] especially as he must have regarded the experience of time as essentially a reflective consciousness of what a merely sensitive organism could never comprehend.

A few more notes must close this summary. Gassendi praises Posidonius for not taking the present as a mere point. He argues against Aristotle that time is not the measure of movement existing only for the calculator, time does not depend on movement, for plurality of movement does not involve plurality of times, nor does a plurality of worlds. In a subordinate sense movement may be said to be the measure of time, as the movement of the sun marks out periods of time. All points of space have one time, *i.e.* every moment is the same everywhere. On the other hand every point of space has all the points of time, *i.e.* persists through the whole series of moments.[2]

These remarks cannot be put in any connexion, for Gassendi gives none. He does not properly distinguish the different views of time which they imply. The most noticeable feature is his omission of any distinction of the psychological aspect, an omission which compels us to take his 'moment of time' as an absolute quantity. While he is clear about the artificial measurements of time, he does not oppose them to the subjective measurement of time, as modern psychology does, but to real parts: a pro-

[1] I. 224. 'Ut Locus secundum se totum est illimitatus, sic Tempus secundum se totum nec principium nec finem habet.'

The syntax here shows that we must not call Time a Whole, but say, 'time regarded as a whole.'

[2] *Ibid.* 'Ut quodlibet Temporis momentum idem est in omnibus locis—ita quaelibet Loci portio omnibus temporibus subest.'

ceeding which is certainly consistent with his view of time as a whole in some sense substantive.[1]

The discussion of eternity which closes this chapter is really concerned with the meaning of timeless, though somewhat indirectly and perfunctorily treated. Eternity might be defined as the time of God, which is to say that it was popularly conceived as the duration of God's life. The notion had passed into philosophical treatises with all its crudities unanalysed. Gassendi furnishes an analysis which dissipates the common notions. He has however a further interest which must be pointed out. The popular idea dissolves into nothing if we examine the phrase, 'duration of the life of God': it at once becomes clear that the foremost idea is that of life, and the understanding of the problem as it concerns time is obscured by the other notions introduced. But over and above this trifling proposition we find a real difficulty in reconciling the concept of God with our concept of time. We must perforce think of God as one to whom past, present, and future are always present: for whom therefore All Time exists at all times, so that ultimately time must be again reduced to a standstill and our distinctions of times to illusion. This attack touches Gassendi very nearly because of the way in which he is compelled to maintain that time is a totality: the nature of God seems to turn the scale finally in favour of a static totality. His reply is subtle, but not futile or

[1] His reference to Posidonius must therefore be read as meaning that the present is a piece of real Time, a quantity of duration forming a unit, not a 'saddle-back' of time; and the whole is therefore an infinite multiplication of finite parts. In Time atomism finds a particularly intractable item.

perfunctory. He says, in brief, that God's being is purely qualitative, not quantitative, and he is only related to time extrinsically, which practically means not at all. God's being is in fact not an experience at all in our sense of the term. It may therefore be a timeless experience, but it is not an experience of the timeless. The latter phrase would imply that the timeless was a possible object of any experience: the former is one of those negative determinations which, like inhuman, insensible, Gassendi delights to regard as positive. The way in which this can be understood will be best explained if we recall an example by which Gassendi explains how the nature of God is related to space. After remarking as to the place of God, that 'Deus in se est' (I. 191), he quotes the statement 'deum esse habendum prout est in se,' and criticises it by saying God is unlimited, 'sed haec illimitatio seu infinitudo non est quam nomine proprio appellamus immensitatem.' The perfection of God, in short, must be conceived qualitatively: 'ut in lacte aliud est summe candidum esse, aliud esse valde copiosum'; and what is thus explained in relation to space must be analogously applied to time. The idea of substituting intensity for extensity was excellent: it opens up wide possibilities for speculative minds. Gassendi, having made it, leaves it alone, thereby showing much wisdom. It is much easier to understand an intensity which does not involve quantity of space than to comprehend an intensity which avoids quantity of time. It is true there is not more whiteness in the milk when there is more of the milk: and similarly we may say that God is not more wise because He

is wise for a greater time. This evades the real problem, which lies in the assertion that if God were God for less time, He would be less a God. So long as time pertains to the nature of God at all, it must pertain as a whole: to answer that it pertains not wholly, but none the less completely by being intensively perfect, is either to talk nonsense or to confuse time and thought.[1]

[1] If it were not so far from Gassendi's general position, this point would deserve further consideration. Modern psychology utilizes this distinction of quality and quantity in order to correlate the time-reference contained in an act of memory with the time-expanse of the experience remembered. This line of thought is entirely useless for the explanation of Gassendi, because it is not the nature of thought but the nature of real time that he is trying to explain. His position therefore leaves him with an existence that has a Time but no times, the whole without the parts. Timeless thought may or may not be more intelligible, but it is certainly not Gassendi's present topic.

CHAPTER III

FIRST PRINCIPLES

(*a*) THE MATERIAL PRINCIPLE

LEAVING time and space we now descend the scale of Being, and come to pure corporeal reality, the subject to which the term 'physical science' is usually restricted. A speculative element still remains in so far as the nature of ultimate matter is reached by inference, and not given in direct experience.

The science of ultimate matter carries us beyond the limits of our sensible world; it takes us therefore deeper than the elements, which are mutable compounds, to some thing which even the imagination cannot further analyse. It is essential to the nature of 'principia' that they should not be produced either from one another or from any foreign bodies. Not only must our first matter be itself irreducible to any lower terms, it must also be capable of explaining the solidity of compounded bodies. Its limits are thus theoretically fixable: unity and indivisibility form the maximum; the mathematical point and the numerical zero form the minimum. These limits must be fixed else our hypothetical material will be incapable of serving

the ends for which it was designed. As to the maximum, if it be divisible it is not ultimate. As regards the minimum, if it be nothing its multiples remain nothing, and the actual world cannot be generated from it. The danger in this direction is exemplified by two current theories: some reduced the unit of matter to a point which if taken mathematically amounts to nothing; others arrived at the same practical result by going beyond the simplest form of matter to pure form, which is equally destructive of all return to the world of common things. With characteristic ingenuity, some acknowledging the force of argument, compromised by giving matter the 'forma corporeitatis'!

Our ultimate then preserves its physical reality and its 'corpus.' The criterion of this is activity, which we further define as tangibility, for the incorporeal beings act, but only matter is an object of touch. By 'touch' Gassendi really means solidity or impenetrability, for this may be a relation between two inanimate bodies; he thinks with his contemporaries that matter may be taken as real apart from our thought, and as maintaining in that absolute objectivity some of the qualities by which we know it.

We may infer, from the multitude of forms, that matter in itself must be indifferent to form. Its quantity must be regarded as constant, change being change of form. The dogma 'ex nihilo nihil' is a category valid for science, but it does not limit God. This assertion is interesting as an example of the way in which Gassendi is capable of keeping to one point at a time. He has no intention of regarding the doctrine 'ex nihilo nihil' as any-

thing but absolute; at the same time it is only a law of thought for the sphere of material production: if we go beyond that sphere to the nature of God or the human soul, its jurisdiction will cease.[1]

So far we have dealt with a priori necessary determinations of matter: we have now to define its nature somewhat more accurately. The history of the subject presents several theories from which to choose. There are (*a*) those who think matter has qualities and (*b*) those who regard it as in itself unqualified. Under (*a*) we have (1) those who speak only of primary qualities and (2) those who add secondary qualities. To begin with (*a*) (1): this class includes the physiologists who took earth, air, fire, water, these being the typical embodiments of the primary qualities heat, cold, etc. Gassendi considers that the choice of one element was really the choice of matter with one primary quality as the unit and the ultimate unit. Under (*a*) (2) come those who take actual complex substances as the ultimates. Among the ancients Anaxagoras is the example: while the contemporary chymici revived his principles. The class (*b*) also divides into (1) rationalist and (2) materialist thinkers. Possibly 'spiritualist and materialist' would have been better terms. Here the atomists are classed as materialist for want of a better term, but the limits to the significance of the word must be remembered. For Gassendi Plato and the Atomists are simply two species of one genus, namely of those who make the matter (ὕλη) ἄποιον. Gassendi's history of the emergence of atomism is arranged so that

[1] I. 234.

the first solutions of the problem of an ultimate seem most complex: refinement brings us to an ultimate that is as simple as possible, and we have our choice between making it 'spiritual' (Plato, Pythagoras, and the Stoics) or non-spiritual (atomism). In *both* cases the ultimate is super-sensuous, and therefore 'metaphysical.'

It is unnecessary to recall all the details which Gassendi laboriously records; but as it was certainly part of the scheme of his work to furnish a history of human thought before his time, it would be an omission not to allow some praise to the excellent way in which these chapters are arranged, or the clever and, I believe, original classification which enables the author to refine the doctrine down in such a way that the mere history of the case seems an unanswerable proof that the atomistic theory is simplest and best.

The principal characteristics of the atom as a material ultimate are too well known to need mention here. The doctrine of the Atom does not occupy so much space as might perhaps be expected: it is not the atom but atomism that interests Gassendi. He notes that Democritus gave the atom only Magnitude and Figure, while Epicurus added weight (I. 266, *v.* p. 3). Gassendi keeps the three. Resistance, he says, is not so much a property as 'ipsammet corporis tribus reliquis [proprietatibus] subjectam naturam (*τὸ ὑποκείμενον*).' It is, in fact, solidity. The atom has parts (as with Epicurus), but is indivisible: it is not conjunct in the sense that it might ever be disjunct; in other words, there is no Void in the body of the Atom. The Atom is said to have

parts, inasmuch as these are required to account for differences of Figure: there is no mention of motion within the atom, though there is nothing in the world of compound bodies that is not full of motion. 'Considera metallum v.c. plumbum in carino fusum: cum ad speciem nihil quietius, immotiusque videri possit, putasne intra ipsum motus, sive itus atque reditus brevissimis spatiis, celeritate incomprehensibili non fiunt.'

In following Epicurus and Lucretius on this point, Gassendi does not seem to have noticed that a perfectly hard body is not elastic, and therefore would finally come to rest: which means the destruction of matter.

The chief point of dispute has always been how far the atom can be conceived purely in terms of reason. The mediaeval thinker was familiar with a 'punctum physicum,' a 'punctum metaphysicum,' and a 'punctum mathematicum.' These are not infrequently confused, and Gassendi shapes his arguments against writers who were already moving toward the view of an atom as an immaterial point, a centre of force or some cognate form of the doctrine. He resists this tendency because it appears to him to be an excess of analysis, going so far as to preclude all possibility of return.[1] He attributes to his atoms magnitude, figure, and weight. They are ultimate so far as we are concerned with the world of things and the category of quantity. In opposition to the average atomist, Gassendi does not consider that

[1] Atomi proinde non puncta sed tenuissima corpuscula sunt praeditique adeo tantula magnitudine quae sit principium et quasi radix magnitudinis omnium corporum.

our knowledge stops where the quantitative analysis ends. He denies that the atom is eternal or unproduced or infinite. God as creator is above and beyond the physical world. With dependence in the way of creation there is combined independence of action: atoms have not 'a scipsis vim motricem,' but they are self-moving 'Dei gratia': a distinction which leaves the man of science unhampered and does not despoil the theologian. The theory of creation can be sketched briefly. At first God created as many atoms as were necessary to form this world: the atoms were not necessarily created separately, but the created mass of matter was such as could be resolved into 'corpuscula': each of these minute bodies has its own affinities, and the command that the earth and water should produce plants and animals, was the act of uniting in one place those atoms suited to become one seed: this process can be repeated wherever and whenever such atoms co-exist as are fitted to cohere; from this we can elaborate the whole scheme of generation and corruption, coherence and dissolution, which makes up the history of the natural world.

This view clearly involves a possibility of free movement, and therefore raises the question whether the Void is not a principle as much as atoms. Gassendi acknowledges that both are primary parts of the universe; but he considers that they differ inasmuch as the Void is of the nature of a condition rather than a cause,[1] and only atoms are capable of constituting 'res generabiles.' As matter is itself not a primary but a secondary cause, the validity

[1] Inane vero solum locum discriminationemque ministrat.

of this distinction might be disputed: as Gassendi's intentions are clear the point need not be raised.

(*b*) PRIMARY AND SECONDARY CAUSES

A doctrine of causes naturally begins in some way or other with Aristotle. In this case it begins with criticism and selection. The word causa is not quite identical with Aristotle's *αἰτία*, the former implying activity, the latter having a somewhat wider denotation and meaning origin rather than producing force. Thus of the four causes Gassendi says that Form is properly an effect, matter is not a cause at all, end a wholly different subject, and only the efficient cause a cause in the proper sense. Gassendi is certainly right in pointing out that 'cause' was a term generally used to denote 'power,' and therefore not identical with the Greek idea expressed in *αἰτία*.

Confining the word cause to efficient causes, we find that these can be divided into external and internal. An external cause is an object capable of acting on another object, as the sun on wax. This is the field of common observation, and requires no further comment. The question of internal causality carries us beyond this threshold into the secret heart of nature. We have to discover not merely the fact that an object can produce an effect, but also the inner constitution which enables it to act thus. This constitution is the temperament and the source of motion: it might be called the form, since it is the essential part that is the cause of motion. We can say, for example, 'the man moves the stick'; and the man is the external cause, but if we wish

to speak accurately we must assign the activity to the soul, which is the moving principle of the body. There is also a sense in which the end is a cause, in so far as the cause may act for an end, not only blindly, as in instinct, but also consciously, with a knowledge imparted by God, making the agent more than a mere instrument. Gassendi does well to distinguish this from Aristotle's meaning.

The classification of causes as external and internal is a superficial separation of the popular from the philosophical aspect of causality. The further distinction into primary and secondary is of a different nature and affects the causes themselves.

We may dispose of the primary causes with the statement that God, as creator and ruler, is the one first cause. The secondary causes constitute the world of nature: their causality is derived from God, but we have much to learn about them, and the acknowledgment of God's power in the world is not to be made an excuse for avoiding the labours of research.

We must first enquire into the nature of the active principle in things. Some have thought it incorporeal: the Stoics supported the claim of spirits and Epicurus that of atoms. If we make it incorporeal or spiritual, cause becomes separated from matter, and our difficulties increase rather than diminish. It is better therefore to take atoms as the principle and make our cause concrete, that is, call materia actuosa the cause. If the cause be regarded as something immaterial, it becomes unintelligible: it requires to be united to matter in order to be actual, and has in short all the failings

of an unjustifiable abstraction. If matter is declared causal its activity must be its nature: it cannot be said to be active by virtue of containing particles of the anima mundi, for that again is the separation of the activity from the active body. As the cause is matter, matter is active: the particles of heat appear to be most active, so we may fix on corporeal heat (*i.e.* heat as a substance) as the principle of motion, activity, and causation in things.

The causality at which we arrive is substantive in every sense of the term. Specific causality may be a relation, but all the relations in which one object can stand to another presuppose a state or condition of the things related, and this state gives the relation its significance. As Gassendi says, this treatment of causality is really an enquiry into temperaments. Given an object A which acts on another object B (external causality), we may call A the cause of B becoming b. But this manifestation is as it were a form of the causality of A, just as A itself is a form of primary matter; and as from the multiplicity of material forms we argue one indifferent matter, so from the multiplicity of forms of causality we infer one general, indifferent causality. The universality of this causal state is shown in its formula. The composition of any one body is never purely homogeneous: there is consequently ceaseless internal unrest, some atoms freeing themselves, others struggling vainly in the toils, some striving upward, and others sinking in dull inertia:[1]

[1] I. 335. 'Atomi ob sui cuiusque figuram ac molem aut liberiores, solutioresque sint et sese facilius ab irretientibus extricent faciliusque vias inveniant quibus per corpus discurrentes inque haerentiores partes impingentes motum imprimant.'

take any apparently inanimate object, and see how it lives in every part of its complex substance: you will then realise that causality is more than a relation, it is a reality in (and perhaps for) every organic and inorganic body.

Gassendi is often clearer in his thought than in his language. His terms are usually defined with scholastic accuracy; but the terms themselves are not as yet properly differentiated: they had still to grow and add to slight differences an accretion of argument and reference. It will have become apparent long ago that causality in Gassendi means simply activity. We cannot now speak of one thing being causal, having now recognised that causality is a relation; but we do still speak as though activity was the property of an isolated object, though usually with an apology to nature and a confession of ignorance. The tendency of Gassendi's period is to take the object as a self-subsisting entity and call it causal. If the analysis is pushed further a curious reaction ensues. Deserting the standpoint of the object, we penetrate to that of the atom: causality is left behind, for in the realm of the immutable it can have no place: atom cannot change atom, and so no atom can be causal: the universe viewed as a complex of atoms must equally be void of causality, though replete with activity. In this way even a thorough-going physical realism finds its universal and particular points of view at least superficially contradictory. Gassendi is only dimly aware of this possibility: he never dreams of opposing one part of knowledge to another and dividing himself into the factions

of appearance and reality; but none the less he finds that secondary causes ultimately slip through his fingers: the world of change becomes a seething cauldron of endless changes coincident rather than correlated; and causality driven to the boundaries of the universe is safe only among the attributes of God.

(c) MOTION AND MUTATION

The subject of Causality led us finally to the question of internal movement or activity in bodies.[1] It is now necessary to discuss the possibility and nature of movement in general. Seeing that the action of secondary causes is as Gassendi here admits, identical with this motion, this book does not deal so much with another subject as with another aspect of the same subject.

The motion to be discussed is neither the activity referred to before, nor that called mutation: it is

[1] I. 337. 'Planius ergo dici videtur cum in unaquaque re principium actionis et motus sit pars illa mobilissima, actuosissimaque et quasi flos totius materiae quae et ipsa sit quam Formam solent dicere, et haberi possit quasi tenuissima contextura subtilissimarum, mobilissimarumque Atomorum; ideo primam causam moventem in Physicis rebus esse Atomos: quod dum ipsae per se, et juxta vim a suo authore ab initio usque acceptam moventur, motum omnibus rebus praebeant sintque adeo omnium quae in Natura sunt motuum, origo, principium et causa.'

This quotation shows that Gassendi is confused. Motion in *bodies* he attributes to the perpetual interaction of their parts, which is possible, because some are finer than others. But the original motion is in the Atom, which, as we have seen, being what it is cannot have motion. To Gassendi this difficulty seems to be overcome by saying God gave the motion to the Atoms. Gassendi's atom is an ultimate, not only in the sense of being the last in analysis, but also as the point at which physical explanation collapses.

merely local motion, which is best defined as 'migratio de loco in locum,' in spite of many objections, such as his who said the axle of a wheel revolved without changing its place. Gassendi finds it necessary to repel many such objections. These can be passed over in favour of the really important question whether motion is possible at all.

(1) A single body is always a priori capable of motion, because it is never an abstract (mathematical) point. As motion is only attributed to physical bodies, it is irrelevant to reduce a body to merely imaginary unity and still discuss the possibility of motion. As every physical body has parts, a change in the relations of these parts implies transference from one place to another, and the whole body may be said to move, though the place of the whole is not changed. The revolving globe is the example intended.

(2) The more comprehensive question concerning motion in general carries us back to the dialectic of Zeno. Zeno however was really concerned to prove that motion was impossible if motion, time, and space were all continua (ex insectilibus constarent):[1] as the atomist does not support that position Zeno's dilemmas may be dismissed. A problem arises as to degree of motion. Suppose a body A moves through a space x in half the time that B takes, can we say the movement of A differs from that of B? Gassendi thinks not: movement as such he clearly takes in an absolute sense; the minima of space and time are indivisible and cannot be reduced: as the body, if it moves

[1] I. 340.

at all, must traverse a minimum of space in a minimum of time, a given space as a multiple of such minima must always be traversed in the same time. For example, a body A which passes through y, a minimum of space, in the minimum of time x, will pass through any space ny in any time nx.

It follows from this that there are really no degrees of motion: we must therefore explain differences in rates of motion (tarditas et velocitas) by supposing that the slower body has intervals of rest. This is in harmony with the mixture of opposites observable in other directions: for 'hac ratione ex nivis lactisve candore ad corvi, carbonis pervenitur nigritudinem.'

A final problem arises from the ancient declaration, 'si quid movetur aut ubi est movetur aut ubi non est.' This is dismissed by pointing out that 'est' is here used absolutely: the object 'movetur ubi est transeunter, movetur ubi non est permanenter'; and with this argument the last obstacle to the recognition of local motion is removed. The proof, in fact, consists in defending against time-worn problems the doctrine of self-moving atoms and a void: the position as such depends on these fundamental views which are to be taken as already proved.

The next four chapters are a fairly elementary treatise on motion, including the subjects of acceleration, projection, and reflex motion.

Gassendi upholds the distinction of natural and violent motion which Bacon condemns so scornfully. The natural motion is that which atoms have by their own nature: the violent is secondary and due

to some application of force. If we take nature universally, nothing can be other than natural: we have the right however to distinguish natura specialis from universalis; and it is a correct scientific procedure to distinguish motions according as they are inherent or impressed.

There are two main principles of motion—impulse and attraction. Gravitation is a form of attraction, but not as some have thought attraction to a place: place as such has no fitness to attract: it is the earth that attracts. This attraction is not to be understood in any vague or spiritual sense: there must be some real, which means material, communication between the earth and the attracted object. How is a stone, wandering in the void, to know where the earth is that it may return to her? There can only be one answer: 'Praeter id quod in lapide est, transmissio sit quaedam ex terra in illum, unde ad ipsum pelliciatur.'[1] The earth may best be likened to a huge magnet. This position, it should be remembered, is evolved in opposition to the view that a thing had a tendency to move to its 'own place,' or else a tendency to 'seek the earth.' Gassendi rejects the idea of a *place* having any attraction, and proposes to mend the second theory by making both the terms participate in the attraction. Previously the attraction was a 'vis insita,' a tendency inherent in the thing and wholly independent of that to which the tendency related. By demanding that the earth should attract the stone Gassendi converts the attraction from a 'vis ab intrinseco pellens' to a 'vis ab

[1] I. 346.

extrinseco trahens,' which is a change for the better, even though it falls short of the best.

It will be apparent from this that action from a distance is not accepted by Gassendi. In dealing with mutation he expressly denies it. Mutatio he treats purely as a kind of motion, and the subject would be of no interest were it not for its connection with the question, 'qua ratione per mutationem seu alterationem creari rerum concretarum qualitates possint.' After a long and arid tract of discussion on the simplest problems of dynamics, we return to a question that revives our flagging interest. Put briefly, it amounts to this: how can a collection of atoms, having only magnitude, figure, and weight, combine so as to produce other qualities, such as taste, heat, and colour? This is clearly a crucial point for a thinker who is undertaking to build up a highly complex system from simple substances and their movements.

There is a technical distinction between 'conjuncta,' or properties, and 'eventa.' Magnitude, figure, and weight are conjuncta; the rest are eventa.[1] The primary eventa are concretio, which subserves generation; and secretio, which subserves corruption, with ordo and situs, which are the foundation of alteratio. Generatio and corruptio

[1] Cp. I. 266. 'Praeter hanc substantiam seu identitatem mavis seu similitudinem dicere, attribuantur Atomis qualitates quaedam, sive accidentia, quorum, ut jam ante insinuavimus, alia sunt Inseparabilia, ἀχώριστα (sic enim Plutarchus), et Lucretio Conjuncta vulgo Propria appellitentur; alia separabilia, et Lucretio Eventa, vulgo accidentia communia dicantur: ideo sciendum est, agi heic non de separabilibus, eventisve, qualia sunt concursus, connexio, positio, ordo, etc., sed de inseparabilibus, conjunctisve, seu dicere malis, proprietatibus' [*e.g.* magnitude, figure, weight].

can however be viewed as alteratio, and we are left with five necessary assumptions—magnitude, weight, figure, order, and position. The first three belong to the atom as such; the last two are relations between atoms. We are to conceive the variations of composite bodies of atoms as analogous to the various possible combinations of letters (*e.g.* et, te, roma, armo, etc.). As letters may be worked up into words, sentences, and books; so endless atoms, in endless combinations, form the great book of nature.

The starting point is given in the natural differences of atoms which make some fit to enter one organ of sense, as the eye, and adapt others to other organs, as the ear or the nose. The relation of sensible qualities to the atoms is exemplified in the whiteness of sea-foam or the yellowness of the decaying leaf: in both cases a colour results from a colourless substratum by mere alteration in the disposition of the atoms. The mere fact of change is taken to be a proof that the elements must be neutral. If the atoms had any colour of their own, a complex of atoms would always have the same colour; but natural changes, such as decay, produce changes of quality; so the quality must be referred not to the atoms but to their relations.

This position must be taken in conjunction with Gassendi's views on the senses. At present he leaves the vital question of the relation between mind and object untouched. It cannot be said that he wholly ignores the mind: his reference to words is meaningless unless the mind to which they are presented is assumed as a factor. The letters *A*

and *B*, he says, differ not only in shape but in sound; but in themselves they have no sound, and only 'sensui diversum sonum exhibent.' He quotes as his own opinion a passage from Galen containing the words 'omnes qualitates sensibiles ex atomorum concursu gigni, quatenus se habens ad nos qui ipsarum sensum habemus.' Here is the first transition from a quantitative to a qualitative treatment of the world in which we live: the task of producing complexity from simplicity is solved by introducing a new factor and correlating a composition of simple elements with qualitative experiences which are not, in that sense, composite at all. The remark already referred to, that *A* and *O* differ in *sound* as well as *shape*, is itself a comment on this point not to be outdone in significance!

(*d*) ON QUALITIES

To an empirical philosopher the doctrine of qualities is one of supreme importance. As Gassendi puts it, all reason depends on the senses and on sense-perception: only qualities are perceived, and they are therefore the foundation of our objective world. Substance we only know through induction: all direct knowledge is knowledge of qualities.

The impression which such a statement leaves on one's mind is that knowledge fails to penetrate into the inner reality of things and remains conversant only with the outer, and possibly deceptive, surface. Gassendi however does something to mitigate this superficiality of knowledge. The quality, as he points out, is properly that which answers to the question 'qualis est?' Practically qualities are

accidents, or rather a given state or condition attributed to a substance is an accident, but taken by itself is a quality. It follows that quality in this sense goes deeper than quality in the sense in which we oppose it to quantity: for quantity will be a species of quality in some cases (*e.g.* tall man); and quality will sometimes include relation (*e.g.* slave). In these cases the determinations pass from the usual category of quantity or relation into that of quality by virtue of being essential. The question then arises whether the absolutely essential qualities of a thing are really qualities or are the thing itself. From the point of view of physics taken in the sense of natural science, the primary qualities must clearly be the inner nucleus beyond which nothing is required: primary qualities will then be only the plural aspect of what we call substance when regarded as a unity. The same point can be looked at in another way. The form of a thing must be a quality in every case in which it is not identical with the spiritus: if the being of a Being is a quality, it would seem that quality ultimately merges into essence and absorbs all that is denoted by substance; but it must be remembered that we are here speaking of things which are always composite and plural, and so may have an existential form realised in the disposition of parts. Prior to such 'things' is the single unitary substance which they presuppose and which may be regarded as lying deeper than the outward natures at present under discussion.

The liberality of Gassendi's interpretation of the term quality can be seen from his inclusion of

'animal esse, sentire, vegetari, vivere' in the list of qualities. A quality must have an objective reality, it must be a reality apart from mind. Hence a relation as such cannot be a quality, and quantity will only be a quality when it is essential. If we say 'John is five feet in height' the quantity indicated is a quality: if we say 'John is taller than James' the quantity is relative and no quality is indicated.[1] Gassendi very truly remarks that relations are dialectical and not physical categories. Motion is denied a place among qualities on the ground that it is properly a process to a quality.

Coming now to the nature of qualities in our world of things, it is obvious that they must all be more or less simple ways of grouping the primary non-qualitative elements of things: in short, the qualities are deducible from the possible modes of combining atoms. For example, density and rarity depend on the proportions of void and matter, or the number of 'vacua spatiola intercepta.' Figure we may pass over in silence, but weight calls for some comment. Upon weight depends all vis motrix, for the atoms in one body struggle together, and motion follows the striving of the majority, modified by mutual implications. The atoms of spiritual natures are the freest and most mobile: hence they are thought to be the seat of voluntary motion.

By nature all motion is straight. Divergence from the straight must therefore be explained by percussion and repercussion. In order to acquire as it were a fulcrum, one of the moving bodies must be regarded as an immobile. The law is laid down that an

[1] I 374.

immovable part in a whole is essential to mobility. The objection at once arises that, when an animal runs, no part of it is immovable. In reply to this Gassendi apparently practises a double evasion. He first qualifies the law by admitting that the immovable part only requires to be comparatively such, and then makes it impossible to say what is a 'whole' in respect of motion. In the case of the animal, for example, the modification of 'immovable' to 'comparatively' immovable makes it possible to regard the body as giving the required 'immovable' for the motion of the legs. If this did not satisfy the opponent, Gassendi would doubtless include the earth in the 'whole' for purposes of motion. At present, however, Gassendi's purpose is purely analytical. He desires to say that motion is innate[1] to atoms. This innate motion is the original element of all motions: it is circular, the atoms whirling among themselves aimlessly. By collision new directions are imparted to these atoms, but however much appearances may seem to be against it the circular motion remains at the root of everything. For the present, then, our interest in animal motions may be summed up and left with one conclusion: they have no 'motus rectus qui non sit ex circularibus compositis.'

This view of motion as fundamentally one has the advantage of reducing to one the various kinds of motion. Impulsive motion is now clearly only an aspect of self-motion: it is self-motion in relation to some other body: similarly 'vis attractrix' is self-motion in relation to some other body. In opposition to many of his contemporaries, Gassendi requires

[1] *I.e.* implanted by God ab initio.

actual contact in attraction; whether immediate or mediate does not matter, but it must be a literal laying hold of the object.

Faculty is vis motrix, for a faculty is just as much as it can do: it is nothing if not active. To this the faculty of Resistance seems ipso facto a contradiction. But, says Gassendi, resistance is not passivity; immobility is self-centred force: in the case of the earth we have an example of complete rest produced by complete tension of all the parts. (This perfect equilibrium was called motus tonicus.) Having removed this difficulty we may define faculty as 'in unaquaque re ipsummet movendi seu agendi principium, nisi primarium quod formam vocant, saltem Secundarium, seu ex forma profluens eiusque velut instrumentum.'

The Faculties are not 'a tota substantia': they are dependent on the spiritus, for it is the decay or destruction of these principles that involves the loss of the faculties. Gassendi goes further, and says that the faculties and the spiritus are one: for though the spirits might appear to be a primary organ of the faculties running through the body from the central faculty, yet this is a distinction that involves no difference, just as the waters that run in the streams are distinct but not different from the waters that run at the fountain. This simile does not throw much light on the subject, but is apparently intended to convey the idea that the faculty is only nominally centralised; in function it is all-pervading. It also follows that all faculties are species of faculty, since they are all reducible to motions of the spirits. As faculty is the same

as spirit, all faculties are innate. A faculty may be acquired, but only in the sense of actually absorbing the matter to which the power is innate. Iron, for example, only attains the faculty of heat by acquiring the matter of fire, in which the faculty of heat is inborn. We now see that a faculty is in some sense the nature of a thing. It is, in fact, the nature of a thing looked at from the point of view of active relations. It follows that there are as many faculties as there are possible combinations of atoms and possible relations of these combinations. Speaking of the great varieties of faculties, Gassendi says: 'id facit varietas tum multiformium corpusculorum, ex quibus una tota res constat: tum specialium contexturarum quae varias partes attinent: tum externarum facultatum quibus misceri ipsas contingit.' In the apple, for example, different combinations produce smell and taste. If we take into consideration the organ of the sentient being we find still more variations, *e.g.* pleasant smell, sweet taste, etc. This gives us a division of absolute and relative: for smell is in the object one (absolutè), but to the sentient beings manifold (respectivè).

The classification of faculties is carried out thus: first, according as the subjects are living or not living. In the case of living things they are

(*a*) general (nutrition, procreation);

(*b*) special.

This method of classification applies to each class. If we take from among animals, Quadrupeds, we may have general and special faculties within these limits.

The second method of classification is quite different. Here we divide into principal and

subservient, the division being decided by the mutual subordination of motions.

Though a faculty cannot be acquired it can be improved both 'ut fortius operetur et ut expeditius.' For the attainment of greater strength nutrition is required, which means in this connexion the attainment of more spirits. The quantitative growth may be accompanied by increase of efficiency attained by use. Habit is the name given to facility of action: this facility may pertain to the spirits or to the organ which they employ, and it is, if anything, more important that it should be realised in the organ. The organ is a crass and rigid thing, against whose unyielding disposition the volatile spirits exert themselves in vain.

Matter is thus a hindrance to mind, and habit gives freedom in the sense that when the organ is properly trained the spirits are no longer baulked of their purposes. If, on the other hand, there is no use for the organ it relapses into its original crude condition: for nutrition, continually renewing the substance of the organ, removes by degrees all the parts that had learned the law, and puts in their place an untrained rabble.[1] This is a rather novel and poetical interpretation of what is generally supposed to result in 'atrophy.' The principles of habit, Gassendi adds, are applicable to all except inanimata, whose changes are purely ab extra.

One more form of the vis motrix remains to be noticed—that which is called Gravity or Levity. Levity is to be taken as in se nihil, so that we are left with degrees of Gravity. As might be

[1] I. 387.

expected, the gradation is due to admixture of vacua: the inane is a principle not as acting, but as reducing the ratio of bulk to weight. It is important to notice that Gassendi regards all the action of gravity as extrinsic, thus shaking off once for all, any influences that his predecessors may have exerted toward the acceptance of Love or Hate or any other mystic principles.

The next qualities may be passed over summarily. They are Heat, Cold, Fluiditas, Mollities, Taste, Smell, Sound. A few points are of interest. Heat may be used as a special term to denote felt heat, or generally (objectively) to denote a condition of body. Calor is a word which denotes, not a quality, but atoms of a certain kind. The atomi caloris are not ex se calidi, but are called so ex effectu. That body is called hot which sends out these atoms: the atoms themselves are not called hot: their power of producing heat is 'objective,' dependent on special forms and activities. We must distinguish then between that Heat which is a real kind and that which is hot either (*a*) potestate or (*b*) actu. A thing is hot 'potestate'[1] when the atoms of heat are retained in it, and hot 'actu' when the atoms are sent out. Retention of atomi caloris explains the heat of pepper and similar bodies. If a substance contains atoms of heat, motion increases that heat: motion however is not the cause of heat, because substances such as water, which do not contain atoms of heat, are not heated by motion. Gassendi distinguishes between calescere, an internal increase of

[1] The difference between 'potestate' and 'potentia' should be noticed.

heat, which applies only to fats the atoms of which are 'hamatiores,' and calefieri or the attainment of heat from without.

Cold is the opposite or complementary of heat: it is not privation of heat. This conclusion is based on the differences of the effects: the effect of heat is 'discutere et disgregare,' that of cold 'congregare et compingere.' Further, the atoms of cold differ from atoms of heat in figure: what figure is to be assigned to atoms of cold is a point that the ancients discussed elaborately. Gassendi accepts Lucretius' view that they are 'dentata': our senses can judge how *biting* is the cold. It should be noted that though Fire is an element, Cold is not: Earth, Air, and Water are not bodies cold by nature, and therefore cannot be summed up as the Primum Frigidum in opposition to Fire, the Primum Calidum.

In the case of Fluiditas and Mollities, with its two species Ductilitas (as in gold) and Tractilitas (as in our muscles, contraction), we have qualities whose opposites are privations. This will be evident if we consider that mollities, *e.g.* depends on the degree of 'inane' contained in a body: the inane is not soft, but the real, which is hard, can only give the appearance of softness by including void spaces.

The next set of qualities are 'ad organum,' or relative to the senses. They all depend ultimately on Touch. In Taste we have particles that act on the palate. Sound has been held incorporeal,[1] but its

[1] 'Pythagoras, Plato, Aristoteles apud Plutarchum fecere sonum incorporeum.' This was due to their considering the configuration of the air the essence of sound: they took figure 'profunditatis expertem,' or abstractly.

corporeality is proved by the reflex motion required for echoes and the necessity of different configurations to produce different sounds.

In Light we have a subject which, for many reasons, has been a time-honoured field of strife. Gassendi begins with definitions: the object of sight is colour; the organ of sight the retina; light is the essence of colour, but is not itself visible. Lux is defined as 'corpuscula tenuissima in corpore lucido'; a body is lucidum when it is a fount and source of light; bodies that depend on others for light are not lucida, but illustrata. To produce the required effect on the organ of vision, Light must be a substantial effluence. Aristotle indeed thought otherwise, but if we give up the substantiality of Light it will be necessary to employ one of the acknowledged substances as vehicle of light: this vehicle will however be unknown to the organ, for that is only concerned with the visible, so that Light is either itself a substance or involves the inference of a substance. The diaphanous or 'perspicuum' is the name given to the substance which is the substratum to light. Aristotle conceived its activity as the vibration of a chord and considered the activity was the light (ἐνέργειαν τοῦ διαφανοῦς). Descartes adopted a very similar idea, but defined his 'perspicuum' as a texture of the spherical corpuscles which fill up the interstices of air, water, glass, etc.—a sort of atmosphere of the second degree of refinement.

Whatever the origin of light may be, it is itself a corporeal substance somewhat like a bundle of corpuscles or rays formed of corpuscles. This physical

reality is merely 'existens' without relation to the eye: it is 'completa' when in relation with the eye it produces light as an experience.

It is necessary to prove definitely that Light is a substance, because this view is rarely accepted. The proof consists in pointing out that Light has certain powers which only a substance can have. These are, first, local motion by which the rays travel from the 'lucidum' to the 'illustratum.' Action at a distance is a fallacy, so that if the luminous body acts on a distant object, there must be a transmission of the agent or agents through the intervening space. The second and clearest proof is that of Reflexion:[1] for if light were incorporeal it would not rebound from but pass through the opposing body. A similar argument applies to refraction, where the body does not entirely oppose the passage of light but is in some degree 'transpicuum.' The similes which Gassendi uses in this connexion are worth noting: speaking of reflexion he compares the light to arrows or javelins striking on a shield and rebounding: with reference to action at a distance he says, if a fountain wets your hand from afar it is because it projects a stream of water on you: similarly a fire warms by sending out a ray of heat, or as one might say a spray of heat atoms, and light illuminates by showering on the object 'streams of light.'

The objection which naturally arose against this substantive view was that the motion of light was too rapid to admit of any such corporeality. Gassendi replies that if light is mere form it is

[1] I. 426.

everywhere at once and has no motion: if it moves some vehicle is required, and it follows that the vehicle does as a matter of fact move just as fast as light, in spite of a priori objections. Gassendi here seems to be applying a doctrine that was greatly needed—namely that notions of substance must conform to experience, and our experience must not be distorted or even rejected to preserve traditional views.

Colour is either light itself or something in things to which light is the perfecting form. Light itself is white or that which appears white (nihil esse aliud quam candor candicansve color videatur). This is the fundamental colour, if it be a colour, of which all others are varieties, according to degrees of mixture of darkness.

The last of the sensible qualities is the imago, or visible species. This subject naturally follows the discussion of Light and Colour, and is properly a question of the perception of forms. As a question of perception it comes under Vision; but objectively considered the species are qualities, and must therefore be considered in this place. The simplest course is to say that the vision[1] of an object is the light radiated from it and determined by its form and colour. Gassendi declines to leave the matter there, but as the question of the nature of these 'visions' has attracted so much attention he reviews the whole history of the subject.

As nothing is absolutely smooth, but has on closer

[1] The English word 'vision' has exactly the double meaning (act of seeing, thing seen) which expresses the problem that troubled the ancients.

inspection numerous 'faces,' the species can be projected in a straight line in any and every direction. It follows that a thing can be viewed from any side, and no two views will be exactly alike, though generically alike. The objects in the field of vision can be accommodated in the eye, in spite of their great number, because the area surveyed is hemispherical in shape, and the species are propelled along lines which converge into a point.

The nature of the species has been differently conceived by different schools of writers. The 'nominaleis' say they are accidents: if so, they must be dependent for transmission on the air; but an accident is not a reality unless it can be separated from the vehicle which it uses: in this case no separation is possible, and therefore species are not truly accidents. Again, from the analogy of sounds the idea arose that the object as a whole produced movements in the surrounding atmosphere, and so, as it were, sent forth pictures of itself. Against this Gassendi argues that the theory involves a movement of the object which sends forth the picture, whereas seen objects are frequently motionless.

These two phases of the doctrine that species are insubstantial are rejected, as might be expected from what has been already said about Light. Epicurus thought the species were corporeal and of two kinds, namely (*a*) 'coagmentationes' or spontaneous groupings of atoms, such as occurs in a mirage, and (*b*) 'effluxiones.' It is with the second of these that we are really concerned. Any given body as an object of sight is supposed to be continually giving

off atoms. These form a picture of the thing by purely natural means. As all atoms move in straight lines unless deflected, and all have the same rate of speed, these 'exhalations,' as they may be called, retain the original disposition of their parts and so produce an effect symbolic of their origin and of nothing else. It is necessary to notice the difference between this and the other view, that the object as a whole produces a picture of itself. Upon that view Gassendi pours scorn: the rock we see would, he says, be in that case a consummate painter, obviously meaning that the theory has a mystical element. The second theory is mechanical: the motion required is not of the whole as such: there is only the innate motion of the atoms: the retention of the original form is due to the *mechanical* properties of atoms moving in a medium too subtle to disturb them normally: and, finally, the effect is not a picture in the sense of being itself a representation of the thing: it is an effect upon the organ of sight which by these means attains a picture of the object. In the former case apparently a 'picture' was supposed to float in the air: in this case the atoms are not the picture but the cause of the picture: just as light was a reality but not a complete reality apart from the eye, so the picture is only realised for a beholder, and apart from any eye is only an agglomeration of atoms.

Gassendi defends the view that 'effluxiones' are substantial, not because it is right but because it is less wrong than the other view. The real difficulty is to explain how things can go on giving off matter and yet never be exhausted. The usual plan of

explaining that the 'effluxiones' are subtle beyond all comprehension (omnem modum excedentes) is, to say the least of it, feeble. But Gassendi attempts no other, and appears to satisfy himself that it is possible to have a substantial loss, which being infinitely small only becomes perceptible in infinite time. The real difference between an infinitely subtle 'imago' and an imago that is an accident, is a question of terms and technicality rather than commonsense. Gassendi apparently means us to understand that what we see is the light from a thing as that light is affected by the thing: beyond this there is nothing but tradition.

There remain now the so-called occult qualities. These constitute a special class; for certain qualities are popularly regarded as peculiarly 'occult': in reality all qualities are occult in some degree, and the difference between 'occult' and 'manifest' is one of degree only. What we look for is some explanation of an effect: an occult cause is merely an imperceptible quality which we attribute to an object in order to explain the effects we believe to be derived from it. The most typical of all these qualities are the two known as Sympathy and Antipathy. Now all the effects produced exhibit the common forms of activity: we are therefore led to assume that the cause can be interpreted in terms of motion, though that motion may be too subtle for our senses to perceive.

The assumption that all relations of cause and effect are reducible to motion and communicated motion, prepares us for a rationalistic explanation of these miraculous qualities. When the chameleon

puts forth its tongue to catch the fly, we see the agent of attraction: when the electrical body attracts other bodies, how can it draw them to itself if not by 'innumerable rays darted out like tongues'? Beyond the world of our senses lies another, identical in kind but too minute for ordinary perception: if our senses were magnified these invisible agents would start into life: we should see the tiny thorns wherewith the nettle stings us, and perceive the corpuscles whose unsuitable shape makes the object painful to our sight. All sympathy and antipathy then is a question of physical causation, of 'corporea organula': love and hate are ultimately physical, and friend is literally like friend, for the essence of affection is congruence of atoms! The ancient philosophy of Hate and Love is now completely inverted: physical relations take the first place and repulsion or attraction explains all: repulsion need not be hate, but hate is always repulsion.

The general theory of occult causes is now disposed of: the discussion of particular instances has only a secondary interest. The cases classed as 'general' are (*a*) conspiratio partium universi and (*b*) influxus coelestis. The former is identical with the dread of a vacuum attributed to nature: the latter is a subject about which we know little so far as astrology is concerned: the movement of the tides is not really a case of 'influxus lunae.'

The special cases also need not detain the reader: why the sponge attracts (sic) the water is a question hardly more scientific in form and suggestion than the later query, Why does a cock frighten a lion? Both these cases seem explicable in ways not par-

ticularly 'occult.' In dealing with the occult qualities of plants Gassendi shows a very interesting phase of the development of thought: the love of the vine for the elm might be pure poetry, but there were relations between plants which were thought to be of real importance: the female palm, for example, was said to be fertile only when sown near the male: the truth which might underlie this observation was obscured by the notion of subtle 'effluviae' transmitted from one to the other.[1]

Gassendi discusses very gravely the occult quality of hate as existing between the sheep and the wolf: he says, 'ovis quidem odit lupum, nec immerito: ab illo enim dilaniatur': the wolf however does not hate the sheep, for he is good to eat: the apple may hate us, but we who eat it say we like it. There is a subtle vein of animism in all these popular fancies which the philosopher still finds himself compelled to treat seriously. The evil eye, the power of incantations, the virtue some plants possess of healing the wounded by being applied to the sword that struck the blow: these and many others mark the flights of undisciplined imagination. In the last case Gassendi makes an interesting remark: the power of the drug applied to the sword was supposed to reach the wounded man, however far away, because the soul of the world is one, and so what affects one part must affect the whole and all parts: thus Unity received an apotheosis almost before it was born!

[1] Nehemiah Grew, whose investigations developed the idea of sex in plants, was born in 1628, and did not publish his work until 1681. It is improbable that Gassendi had an accurate knowledge of the subject, though possibly it was 'in the air.'

(e) ON THE ORIGIN AND DECAY OF THINGS

Whatever our ultimate views may be on creation and annihilation, there remains untouched by these the whole sphere of becoming. Becoming can be regarded from two points of view, according as we consider that which becomes or that which ceases in order that something may become. The negative aspect of the becoming of any one thing is the ceasing of its antecedent, so long as we allow that the antecedent is really and truly such: if however we prefer to deny the antecedence and declare the whole movement of Becoming illusory, change may be refined away to nothing more than variation of qualities. In order to be clear as to the scope of this discussion, the terms employed must be carefully distinguished. The first is creation, which means the production of something out of nothing: the second is mutation, which denotes a change from one state to another. Now this change may affect only the quality of a thing or the thing itself: in the former case it is called Alteratio, in the latter Generatio.

These extreme points of view are represented on the one hand by Parmenides and all who deny motion, on the other by those who regard all new forms as creations. The standpoint exemplified in Parmenides is that of the monistic schools for which substance means the Whole rather than the Thing. From this interpretation it naturally follows that all change is change of the Whole, and since the Whole cannot become something other than itself, the change is ultimately an illusion. If, on the other hand, substance means Thing, change will mean that one

thing becomes another thing, at least in the sense that one thing gives place to another thing. But even those who take substance in the pluralistic sense do not agree in their explanation of change: to many the idea of one thing becoming another thing is repugnant: the tendency then is to return to the position of Parmenides, but apply his doctrine not to Substance but to substances. To do this successfully we must establish our ultimate substances. Common experiences can be appealed to as a proof that we know what we mean by change. Every day there is some new thing under the sun about which we feel that to-day it is and yesterday it was not.[1] But if our ultimate substances are things each with a character of its own, the alterations it can undergo must be limited by the necessity of retaining the character. An acorn may become an oak, but the oak does not become an elm, says the opponent: when pressed further he will explain that the acorn is potentially an oak, and therefore its development is determined. But either the acorn is or is not an oak: if it is an oak the Becoming is pure illusion: if it is not, what is the principle of becoming? The answer is combination of parts. As these parts precede the whole, they are themselves neutral, *i.e.* fit to enter into any combination.[2] Generation is now

[1] 'Perspicit abunde sagacitas tua, quo dicere sensu cum Sapiente potuerim "nihil esse sub sole novum." Quare et lubens tibi subscribo dum argumentaris nova esse omnia, ob continentem, quae in rebus observitatur, mutationem' (*Ep. L. Valesio*, 1647, vi. 264).

[2] This must be taken with a limitation. The actual ultimate is not the atom but the 'semina rerum,' *i.e.* atoms qualified to enter into any combination of a given kind. The process of Generation is 'assimilation,' or reunion of like with like, a process of selection as well as combination.

definable as mixture of parts: the matter is given in plants and animals as much as in houses: the mixture makes the thing!

It is clear that our neutral elements are the atoms. Creation is the act that produces these primary elements: the atoms are created, not the world: the world is the product of atoms endowed with a motion of their own. One difficulty, however, remains. If the matter is always the same, and the thing is a combination of parts differing from other things not in the nature of the ultimate elements but in their combination, is it not really the Form, and the Form only, that is generated? Gassendi attacks this position with skilful dialectic. It is said that when a combination is effected a form is educed: this form was not present before actu but potentia: then how can it be educed any more than gold can be educed from an empty purse?[1] If the form does not arise out of the matter, we have not eductio but generatio: a form, that is, is realised which did not exist before, and that is just what we mean by generation. If the form is asserted to be something distinct from matter, and yet no matter is lost in producing Form, the Form must be especially created and we are committed to a constant miracle.

[1] I. 468. 'Respondent potestatem materiae respectu Formae duplicem esse, unam eductivam, quatenus forma potest vi agentis ex illa educi: aliam receptivam quatenus potest eandem forman ex se eductam recipere: sicque materiam utraque hac potentia formam continere. Ac primum continere aliquid eductivâ potentiâ nihil aliud est quam habere actu in se, quod possit exinde educi. Ita crumena, in qua sunt actu decem aurei, dicetur illos continere eductiva potentiâ, quatenus inde educi possint: nam alioquin, nisi actu in se haberet, ii ex ea educi non possent, neque crumena dici posset continere eductivâ potentiâ.'

The result of our review of all previous doctrines is then the survival as fittest of the common-sense standpoint: and the achievement is perhaps greater than it appears at first sight. At one point Gassendi's position seems very much exposed, but the opponent is silenced in anticipation. If mind is not matter, have we not here a case in which a combination of elements of one kind produces or conditions the generation of a reality of a different order? The point may be dealt with in two ways; the first is to stolidly assert that mind is a form of matter generated by the particular combinations of matter which it is found to accompany; the second is to attribute it to the act of God, and so leave it. Gassendi chooses the second course, perhaps wisely.

SECTION B

CHAPTER I

THE INANIMATE WORLD

THE second part of the *Syntagma* begins with a treatise de rebus terrenis inanimis. The majority of its contents are not worth reproduction in full or with any degree of exactness. The connexion of these chapters with the scheme of the whole work may be gathered from the summary of the subject matter already given (*v.* p. xii). A few points of particular interest may be selected for special comment.

After dealing with the land and the water, including seas, rivers, and the tides, we advance to the bodies that are found in the earth. These are classified as 'mista perfecta' in order to distinguish them from the 'meteora' (winds, clouds, rains), which are imperfecta: they are also called compositiora, because they are compounded of more than one element. This class includes Fossils, Plants, and Animals. The term 'fossil' is used in the bare sense of things which have to be dug up: as a rule this is limited to stones, metals, and minerals; but there are other treasures in the bosom of the earth which are omitted by this limitation, and Gassendi proposes to include under this heading the primary

forms of matter which are 'liquidiora.' We are now dealing with the very lowest forms of existence. Gassendi's intention is to begin at the bottom of the scale of existence and rise in orderly procession to the highest. He is not content with starting from even such elementary stages as are given in metals, but desires to get deeper still, to the most formless conditions of matter, and begin with what he calls the 'mean forms' out of which nature constructs the comparatively developed things called metals. These 'mean forms' or first conditions of matter are the various kinds of earth, the 'succi concreti' and the 'mista mineralia.' The kinds of earth are first enumerated and their relative fertility is commented on; then the succi concreti are catalogued in the two main classes macri et pingues (among the macri salt comes first, among the pingues sulphur and bitumen are the most important), and finally the mista mineralia are given in their order. Beyond being an integral part of Gassendi's universe these have no interest for us now, but as part of that conception they demand attention. As we are now in the realm of things inorganic the question of becoming is important. Each class of things has its own semina and each thing is formed by the cohesion of semina of one kind: that is to say, generation is a simple process of cohesion of homogeneous parts, and as there is no question of voluntary unions, the production of any specimen of this class is dependent on the chance which collocates in one place the kindred elements. Whatever we may have to say later on about alimentation and the purposive union of parts, this is the sphere in which we can

subscribe unreservedly to the action of chance as it was primarily conceived by the earlier atomists.

Passing over the intermediary discussion of volcanoes and earthquakes we can take up at once the question of the formation of inorganic bodies as it is described by Gassendi, with special reference to 'lapides' or stones in the sense in which we use that term when we speak of precious stones. It is absurd to suppose that all these were created at the beginning of things once and for all. Apart from the inherent improbability of the idea, we can see for ourselves that the process is going on around us every day. The matter is in this as in every case given. The point which calls for explanation is the regularity with which similar forms are constantly produced. For this we must postulate a formative power, a vis interna, in this case a vis lapidifica: there is no less reason for asserting the existence of this formative power in the case of stones than there is in the case of the plant or the chicken.[1] If any doubt remained it would be dispersed by the instance of crystallisation in which the presence of such a causa constans is indubitable. This vis lapidifica is a form of vis seminalis, that being the more general term: in the case of some animals and in plants the vis seminalis is obscurior; and in the case of stones it is still more obscure, but not

[1] 'Quamobrem calor quidem et frigus conferre interdum ad maturiorem coitionem indurationemque possunt aliquid, at debet esse praeterea vis quaedam lapidifica, quam et seminalem dicere nihil vetat . . . est praeterea vis seminalis quae ex preparata materia tam plantam quam pullum delineet: ita quo lapides formentur debet omnino praeter calorem aliudve agens extrinsecum esse interior quaedam vis quae conformationem moliatur et seminalis censeri possit' (II. 114).

on that account to be denied altogether. We must not however deduce from this too much: although gems and all other stones are formed by the action of this vis seminalis they are not on that account to be called living things: they have not life in the sense that the plants have: they are solid compact bodies in which there is no circulation and no alimentation, not even through that which they call 'insensilem transpirationem': they do not grow in the proper sense of the term, and we certainly cannot infer from the fact that one gem is bigger than another that it is therefore older, or 'grown up'! The coral does indeed grow, but then it is a plant!

The most important topic in this book is that of the magnet. Gassendi has used the magnet frequently in the later parts of his work by way of example, and, as it is one of those marginal topics which seem to have a mystical affinity with higher forms of existence, it will be as well to examine carefully what Gassendi has to say here, where he treats the subject directly and in its proper connexion. The point about the magnet is that it exercises attraction. When the iron comes within its range it is drawn toward it by some invisible power, and the data thus given to the ordinary senses of man are exactly fitted to encourage idle speculation. In the first place Gassendi asserts that the action of the magnet is purely physical: it must therefore be mediated action, not action at a distance, and the mediation must be achieved by a substantialis corporeusve effluxus: there is to be no shirking of the question by introducing emanations of a

doubtful order: if we had the required keenness of sight we should see the hooks by which the magnet lays hold of the iron. That is one question, and so far we seem on safe ground; but a more critical point is raised by the two statements that the magnet has something analogous to plants and to sense. The analogy to plants turns out to be a similarity of habits such that, as a cutting can only be grafted on to a tree in one way, so the magnet can only be joined to another magnet or a part of itself according to the way the fibres run. As regards the analogy of the magnet to that of the sensible agent, the analogy consists in the following points of resemblance. (1) As the animal is attracted by the object, so the iron is attracted by the magnet (2) The action is in both cases per immissas species that is, a definite something is emitted by the one which passes over to the other. (3) The species thus emitted enter into the soul of the object in both cases and produce the disturbance which results in the consequent movement. (4) The activity of motion in both cases begins from the soul.

This language looks on the face of it extremely animistic: none the less Gassendi does not mean to imply that the magnet has a soul in the proper sense of the term at all.[1] He carefully adds every

[1] 'videri esse in magnete ac ferro vim quandam analogam sensui: id nempe propter attractionem haud absimilem Animali. Nam ut Animal specie quadam objecti externi perculsum, ipsum statim appetit, et ad illud rapitur: ita minor magnes ac ferrum quamprimum maioris sive potentioris magnetis specie percellitur, appetitu quodam rapitur ad ipsum. Certe ut sensibile objectum non. . . . Et ut objectum sensibile per immissam speciem convertit trahitque ad se animam quae vi sua corpus quantumvis crassum una versus objectum transfert: ita et magnes per transfusam speciem videtur

time he mentions the word anima the qualifying quasi: he distinguishes the other anima to which this is analogous as anima sentiens, and assures us that the magnet has only 'something analogous to a soul.' What we have in fact is a type of motion; what we might call responsive motion; and Gassendi is well aware that when he comes to sensibility he will not be able to tell us much more about it than can be summed up in some such phrase as this of responsive motion. The significance of this will be pointed out later (p. 262): for the present it is enough to show that we cannot assert on the basis of what Gassendi has to say for himself either that matter is always endowed with soul, or that soul is always material: similarity does not exclude difference, nor does difference destroy the possibility of co-existing similarity: the eagle and the oyster are far enough apart, and yet we find reason to put them on the same scale: can we not then put the magnet and the animal in some relation of similarity, though the magnet is no more an animal than the eagle is an oyster?

The subject of Plants, which occupies the second part of this section on things inanimate, is important in one respect. We shall pass over all that is

ad se convertere trahereque ipsam quasi animam (seu florem substantiae) ferri, quae sua vi totam ferri massam versus magnetem una abripiat. . . . Quare ut hoc modo subingressa speciei corpuscula in substantiam animae (partisve sentientis ipsius) illam ita sollicitant ut non sine quodam impetu in objectum feratur: ita videntur corpuscula speciei magnetis subingressa ferri quasi animam, ipsius corpuscula sic evolvere et in magnetem convertere ut hac ratione sollicitata impetum vegetum in magnetem concipiat et quod amplius est etiam parem speciem illico diffundat.'

said on the kinds and classification of plants, and confine our attention to the consideration of their nature, and the place which they are to occupy in our scheme of the universe. Gassendi begins with the most important point, namely the question, have the plants a soul? Many writers had held this theory: as a rule it was a deduction from the doctrine of the world-soul, and there were great differences in the extent to which the doctrine was pushed: the Manichaeans, for example, 'sic dederunt plantis animam rationalem ut florem aut fructum decerpere foret homocidium patrare': [1] while Aristotle represents the other extreme of moderation in attributing to them only a nutritive soul. Epicurus is in direct opposition to these ideas, and declares that plants have no soul at all, an opinion with which Gassendi finds himself in perfect accord. He reviews the meanings attached to the word animatus: its Greek counterpart ψυχή is from ψυχεῖν, which is to say, 'flando refrigerare,' and this we all know is peculiar to animals; plants are not even animals in the strict sense of ζῶα, much less animata corpora; and finally, if we think of the derivation from ἄνεμος, *i.e.* spiritus, this too excludes plants from the class of animata. But while he is thus clear that a plant is not an animal Gassendi obviously feels that there is some excuse for the general tendency to give plants a place in the scale of nature much nearer to the animal than to the stone: he therefore enumerates all the 'wonders of plant life' which were known in his day and seem to have been as fruitful a source of credulous wonder then as now. There is doubt-

[1] II. 144.

less much that is to us extremely wonderful in the apparently purposeful activities of plants, but, says Gassendi, however wonderful they may be, the original question, are there any proofs of a soul?, remains unanswered: anima is often used loosely, and we speak of things as animated[1] to which we should not give a soul if required to do so explicitly; in other words, there is much we call animate that we should never call animal. We are in fact caught between the animal sphere and the too comprehensive sphere of nature in general. Finally, Gassendi defines the plant as corpus vegetabile sensu carens, admitting that it would be more natural, if less exact, to say corpus animatum, *i.e.* 'vivens quod nutriri, crescere, sibi simile generare possit.'

This last point directs our attention to the question of the origin and perpetuation of plant life. The first plant in the world's history must have arisen from a conjunction of like atoms, and this was in the usual way fortuitous. But the tendency which united the first group of atoms in the first plant works on a smaller scale in keeping together those atoms which are the specific semen: hence the process of reproduction is made easier, and the reason why plants are localised is apparent. In this connection Gassendi returns to the question of the soul: the marvel of the structure of the plant with all its adaptations and contrivances rouses him to further comment on that formative power which is thus shown to be innate to the plant. We must, in fact, allow that there is a central principle, and we may even call it a soul

[1] We now speak of animated pictures as well as animated nature!

if it be remembered that by this term we denote only a definite principle, a substance most like to a flame, which is indeed spread through all the plant, but is especially concentrated in the parts which form the seed (II. 172).

CHAPTER II

THE ANIMATE WORLD

(*a*) INTRODUCTORY

THE third section of the second part of the *Syntagma* has two 'membra' dealing with natural objects (rebus terrenis) in general. We have discussed the former part, and can now proceed to the second. The distinguishing characteristic of the subject-matter is Life, in the sense which is implied by the title Animate as opposed to all the previous existents which have been classed as Inanimate. The highest class of Inanimata comprised Plants: the specific difference which brings us to the next highest stage is the appearance of Sensibility. The name Animal is given *διὰ τὴν αἴσθησιν πρώτως* (II. 193), hence we shall not object to including under this title those forms of organic life which have only the rudimentary sensibility shown in reaction to touch, namely Zoophytes (Plantanimalia), to which we can ascribe only Tactus, and (perhaps) its localized form, Taste. With this general determination of what constitutes an Animal, we may proceed to classification. The stars and the gods we may neglect, in spite of Plato and Aristotle: we have then terrestrial creatures left: of these there are many traditional classifications.

(1) The division into Rational and Irrational is bad: for it introduces a negative class, and does not exclude immortal beings who might certainly be rational.

(2) An obvious division would be according to mode of motion, *e.g.* the classes Volatile, Natatile, Gressile, Reptile, Tractile, Immotum; but this is unsatisfactory, since the classes overlap, and there seems to be no principle of division. The question indeed arises whether a classification which serves all purposes can be found. Generally we classify to suit some particular purpose (pro occasione petimus): we choose as our basis, mode of generation, distribution of parts, habits (mores), nature of food (ratione victus), or even the locality in which the creatures are found. In such cases the end must justify the means, but no one of these can claim to be a final and universally valid classification. Gassendi finally adopts the division into Sanguinea and Exsanguia, acknowledging its many faults, but finding it more adapted than any other to comprehend such a large and various range of objects. In spite of scholastic objections we do finally adopt a *negative* classification: Gassendi realises that such a dichotomy may fail in face of species which are neither, and weakens his position in so far as he seems to intend, not so much to classify all animals as to make a classification under which the animals are to be subsumed, whether they will or no. It is essentially a scholastic trait to make the law first and then adapt nature to it. The scheme of classification which guides the author through the remainder of this

book is so hopelessly out of touch with our conceptions that it may be consigned to oblivion: his treatment of the subject is an excellent example of his discursive style. He ranges from the elephant to the fly, quotes authors innumerable, discusses the probability of Centaurs and Sirens, and grants respectful consideration to derivations of names too ludicrous to be any longer amusing.

The Second Book opens with a formidable collection in two chapters of all the names of the parts of the human frame and of those parts which are found in animals, but not in man. This too is a mine of curious information, but hardly such as would justify reproduction. The construction of the sense organs we shall consider later, and pass over the rest in silence.

(*b*) ON DESIGN IN NATURE

Under the heading 'Use of the parts in Animals' Gassendi elaborates his views on the teleological question. Epicurus, in accordance with his theory of atoms and their fortuitous concourse, had denied that the parts of the body were differentiated for definite purposes. Eyes were not made for seeing, nor ears for hearing: if the contrary is asserted, it will follow that hearing existed before the ear, seeing before the eye, which is nonsense: and Epicurus finally leaves the differentiation of organs unexplained, but accounts for difference of function by supposing that the application of the Soul to the organ results in an activity determined by the nature of the organ (*e.g.* seeing, when the application is to the eye, and so on). This conclusion

may be briefly stated by saying that the function is the effect and not the (final) cause of the organ. Against this Gassendi argues at great length; but in spite of the clearness of his statement he seems to have overlooked a rather obvious confusion, for, if we speak of the eye, the ear, or the nose, we naturally think of them as differing, because we think of their correlatives in perception (sight, hearing, smelling). If we resolutely exclude all ideas of the sensations, and consider only the organ as a mere compilation of atoms, the position of Epicurus reduces itself to the unprovable proposition that movements of different kinds of atomic groups are different kinds of movement. This is not quite such a quibble as it appears: for we have to remember that Epicurus was not thinking of an organism differentiated by the action of an environment which is the ground of variety in experience, but of an organism which is in itself so differentiated as to be able to produce variety in the experience of a Soul which is a unitary thing going out to its world.

While accepting the general theory of Epicurus, Gassendi declines to commit himself to a reign of chance. His remarks are an instructive comment on a stage of thought which so nearly arrived at truths only recently appreciated. He recognises that natural selection (natura electionis capax. ii. 228) has determined what forms shall survive: from the innumerable host of the created only some survive, 'illas puta quas contigit habere parteis sic constitutas ut nactae fuerint accommodatum ad sui ipsarum conservationem generationemque consimilium,

usum.' Galen is quoted as the authority for an opinion held by Epicureans that the tendons of the hand are strong, not *for* use but *from* use. Thirdly, the question is raised, if rain falls on the crops by design, why does it also fall on the sea and the rocks? We have here three distinct questions—first, as to creation; secondly, as to development; lastly, as to God.

(1) The question of creation is taken as wholly distinct from that of development: as the point cannot be settled, Gassendi thinks it best to ascribe creation to God, rather than chance.

(2) The remarks on development must be considered carefully, else it is easy to attribute to the writer a position far beyond his actual attainment. Instances are quoted of adaptation to circumstances, as the hardening of the soles of the feet in people who go barefoot: cases of useless parts in creatures are noted, as, *e.g.*, cur mares quoque expertes lactis mammas haberent. But in neither case is the real significance apprehended: for Gassendi never seems to regard development in a way that would admit of new species arising; nor does it occur to him that a structure that has no function indicates a radical process of change. He was open-minded enough to admit that a useless appendage was no credit to Providence, but the idea that development from one form to another might be indicated by stages in which rudimentary organs survived, belongs to a scheme of the universe not revealed to Gassendi. For Gassendi, as for Epicurus, all process and becoming virtually ceased when the world as it now is began to be. The

primeval matter—the atoms—might of course produce new forms; but practically it is assumed that the number of successful possibilities is now exhausted. In this way an evolutionary is combined with a static view of nature.

(3) In dealing with the question of a Creator, Gassendi is not so hampered by the claims of orthodoxy as on some other occasions. His middle course is not only suitable to his orthodoxy, but philosophically possible. We must not admire the temple and ignore the architect,[1] and as some creative power, both wise and intelligent, has to be acknowledged, it matters little whether we call it nature or God. Mingled with the rhapsody which proclaims the Creator we find some shrewd remarks: the order of the Universe compels us to see behind it a mind; but the compulsion is aesthetic, and the assertion of God rests on faith rather than argument: the crude teleology which has raised such bitter discussions is annihilated by the remark that function and organ cannot be separated: one does not come before the other either logically or in the time order, and the creature cannot be considered in abstraction from the world in which he lives. Thus Gassendi avoids the dogmatic tone of Lactantius, and preserves his faith without sacrificing his reason, while his assertion that current teleology is based on a false abstraction marks an enduring distinction between those who acknowledge the fitness of things and those who would advance beyond the given data to prove special design.

[1] II. 231.

To make Gassendi's position clearer, I may add the following quotation from Wallace, *Epicureanism* (p. 115):

'Throughout the whole of his explanation of the origin of the earth . . . Epicurus is careful to exclude any reference to divine action. There was no design, no plan determining beforehand the process of evolution, and adapting one part of the cosmic structure to co-operate with another. . . . In all its phases teleology is extruded. The very animals which are found upon the earth have been made what they are by slow processes of selection and adaptation. . . . Plants and animals have the same source as rocks and sands. It is from the seeds or elements contained in the earth that the animals have in some strange maternal throes (as Lucretius somewhat figuratively puts it) been evolved in their season: they have not fallen from heaven. The same naturalistic explanation is given of the special endowments of human beings. The organs of sense were not given us ready-made in order that we might use them: that which is born in our body, on the contrary, generates for itself a use. The structure, for example, which we call the eye was not given us as an organ of vision: it arose, we need not enquire too curiously how, and it was found to be useful for the perception of objects in the light. Whether this use by degrees created an organ more and more appropriate for its purpose—function, as it were, perfecting the organ—is a point apparently not discussed by Epicurus.'

Thus much about Epicurus. As regards Gassendi, we may say that he does consider the last point

mentioned as omitted by Epicurus, and this has led him to see that there is a relation between the organ and its function which is not expressed in a doctrine of chance. In order to understand Gassendi, we must keep in mind that there are three distinct points of view. (1) We may rely on chance: this excludes creation and design. (2) We may say that the organ was designed for its function. This sounds reasonable enough if taken with the significance that the terms would have in modern parlance. In the language of *this* period it implies that the function existed before the organ, that there was a *seeing* which was literally antecedent to the being of the eye. This was easily shown to be absurd. In modern evolution we have a totally different scheme, the two factors given us in, *e.g.*, Spencer's account, are the sensitive material and *light*: in this scheme it is light which exists before the eye; in the other scheme we have *sight* in place of light, which makes all the difference. (3) We may refuse to accept chance and decline to say that each organ was specially created, but declare that the result proves that there is design enough in the universe to make possible those combinations of matter which are required for these functions. If it were a case of all chance, we might have only organs we did not want, *e.g.* eyes in a world without light. Selection can remove those organs we do not use, but it could not create others. On the other hand, if Providence controls every detail, the design would be better than it is!

(c) THE THEORY OF THE SOUL

Gassendi discusses the nature of the Soul, not, as might have been expected, in direct connection with his psychological theory, but between the discussions on the parts and the generation of animals respectively. This will however be justified when we understand the sense he attaches to the term Anima.

Primarily, it is the specific difference which distinguishes the Animal from the inanimate and from plants: for little as we may know about it, the soul of the animal is assuredly something very distinct from that soul which we may concede to plants. Gassendi holds a modest opinion of his own ability and the value of the discussion. We cannot expect, he says, to learn the nature of the soul: it will be enough to know what has been said about it; the Church alone gives us certainty on the subject. With this tribute to orthodoxy, the philosopher proceeds with the perilous theme in a manner which his contemporaries must have regarded as dangerous free thinking.

We are accustomed to confine psychology to the study of phenomena in some degree intellectual.[1] The mediaeval thinker avoided this path to error by keeping two terms for all that we include under

[1] I say 'in some degree intellectual' without forgetting that the tendency of much of our modern psychological writing is to go beyond what we should ordinarily call intellectual phenomena. In spite of this, and in spite of our 'animal psychology' (which is largely engaged in proving its own possibility) and our treatment of subconscious phenomena, not to mention our phrenology and our analysis of adolescence, we have not yet got to the point at which we could speak of an active principle which did nothing but control digestion, as a 'soul.'

the name 'Soul.' For the intellectual agent the term Animus is used: Anima is a more comprehensive term, and may be translated 'principle of life.'[1] The historical discussion is, as usual, a splendid display of erudition: one chapter deals with those who consider the soul incorporeal, another with those who regard it as corporeal. If it be regarded as incorporeal, it may be either substance or attribute, *i.e.* either an 'existens quidpiam in se,' or a form, quality, accident, or inseparable adjunct. Pythagoras, Plato, and the Platonists are mentioned as authorities for the view that it is a substance, while to those who regard it as an attribute belong Aristotle and all who define soul as a harmony (Dicaearchus, Asclepiades), a theory best known by the argument of Simmias in the *Phaedo*, though others seem to have given it a different phase by speaking of it as a harmony of the senses or a temperament. The variations of the theory that the soul is corporeal are scarcely worth recapitulating. Gassendi notes that no one ever thought it of the nature of earth—air and fire were the more usual analogues—and quotes the well-known theories of early Greek philosophy. More important than these is the view that the soul was a 'spiritum ex sanguine factum': so Virgil says, 'purpuream vomit ille

[1] This would not be admissible in all cases. Some thought that the possession of Anima constituted a degree of dignity which could not be attributed to all creatures, an opinion which was due to the tendency to confuse the Anima Mundi with God, and a consequent repugnance to including in the Anima Mundi beings not worthy of the heaven of the elect. Hence the term Anima came to mean soul in the sense in which it is used in the phrase, 'the soul that sinneth it shall die.' For that class of thinker animals must be automata.

animam,' and in the Bible we read, 'Vox sanguinis fratris tui clamat ad me de Terra!' St. Augustine thought the authority of the Scriptures indecisive, for blood might be taken not as identical with, but symbolic of, the soul: as the 'sedes immediata' of that all-pervasive principle of life. The ancients too seem not to have meant sanguis, but rather 'sanguinis flos,' which is a possible interpretation of 'spiritus ex sanguine factus.' Galen and Hippocrates supported this view, which ranked as the 'scientific solution' of the problem; and here we have the origin of those 'vital airs' which played so large a part in mediaeval psychology.

Gassendi is satisfied that the Anima is corporeal: the inheritance of certain characteristics (non lineamenta corporis solum sed etiam nota animae), the fact that soul and body may be similarly affected, that what nourishes the outer nourishes also the inner man—these facts and the authority of the fathers settle the question. It is characteristic of Gassendi to settle one point at a time: so far we conclude the soul to be corporeal, *i.e.* substantial, not mere quality or disposition or symmetry of material parts, but itself a 'principium agendi.' The 'materialist' to-day inclines to make the soul a non-entity, an epiphenomenon. Gassendi argues that it does act, and because it acts it must be itself a reality, a thing not a shadow, substance not mere relation (as in a 'harmony'). This decision that Anima is under the Category of corpus, does not decide what kind of corpus it is: so long as it is not mere quantity or quality or relation it *must* be corpus. Modern arguments turn mainly on the question

whether a soul is body or spirit: Gassendi's primary task is to decide whether it is something or nothing: whether the something is bodily matter or non-bodily matter is a question of secondary importance. An examination of the views of Epicurus leaves him with no satisfactory position:[1] he feels moreover the danger of dealing with the Anima in any way that might bring him into collision with ecclesiastical authority: he chooses therefore to express himself de anima brutorum, though it is not the anima but the animus which makes the crucial distinction and

[1] Cp. with the account of Epicurus the following remarks by Gassendi (II. 248-250): 'Epicurus probably made the atoms of the soul round: he does not seem to have said what they were so much as what they were *not*: Lucretius says "fugiens nil corporis aufert," which dematerialises the concept: "ad haec memorant Plutarchus et alii Epicurum non fecisse simplicem Animae naturam sed esse voluisse κρᾶμα ἐκ τεσσάρων, ἐκ ποιοῦ πυρώδους, ἐκ ποιοῦ ἀερώδους, ἐκ ποιοῦ πνευματικοῦ, ἐκ τετάρτου τινὸς ἀκατανομάστου ὃ ἦν αὐτῷ αἰσθητικόν*" (Stob. *Ecl. Phys.* p. 798), temperatum quid ex quibusdam quattuor nempe ex quodam igneo, ex quodam aereo, ex quodam flatuoso, ex quarto quodam innominato quod ipsi est sentiendi vis": the four mix in such a way as to produce a one (inde fiat una quaedam substantia). We see from this passage (1) that the matter is defined so as to be practically immaterial; (2) that a substance is introduced simply to explain that which the others do not explain, sentience; (3) there is no suggestion of direct perception of a soul: it is an inference, relying mainly on an induction from the data of a living and a dead body by a method of differences. The Logic of the argument is curious. It is said, a dead body is not lighter than a living body, hence the soul has no weight: a dead body does not feel, hence the soul is that which has feeling, etc. These two arguments alone would prove (1) that there was no soul, or else that it stayed in the body, and (2) that death is loss of feeling—not of a soul that feels. The assumption of the soul made these "proofs" pass muster; but it is obvious that it would change the position very little indeed if we left out the soul as it is and confined ourselves to what it does.

*Gass. sic. τοῦτο δ' ἦν Ritter et Preller 384.

superiority of man.[1] The following data seem certain: the anima is collateral with life; vita est quasi praesentia animae in corpore: and therefore neither cor nor sanguis can be identified with it, since these may remain unimpaired after death. Secondly, it is aliquid pertenue, and in fact not an object of the senses at all: it can be perceived only by reason which deduces its actuality from the necessity of finding a principle of motion and nutrition. The deduction is not criticised by Gassendi, but is obviously faulty: the proof says, 'when the soul is in the body the functions are possible: when it departs, they are impossible,' a use of the deductive canon which assumes that existence of the soul is previously established. Thirdly, soul cannot be either a Form or a harmony of elements, for it must be an active principle, and if we call it Form or Harmony it becomes a mere relation. Thus we arrive at the definition that Anima is very slender substance as it were the flower of matter, with a specific habit or disposition or symmetry of its parts: as substance its extreme mobility qualifies it to be the principle of all action, and its particular symmetry determines the quality or mode of activity. It is in fact,

[1] II. 250. 'Principio vero distinguendum inter Animam Hominis Animaliumque aliorum est: et cum operosior res sit circa Animam Hominis, ideo videtur prius dicendum de caeterorum Anima, ut de qua Mentis immortalis experte et philosophari liberius, et falli minore cum periculo liceat.' It should be noted (1) that Gassendi expressly says he will take for examination the Anima, 'quae sit in perfecto, sanguineo, respiranteque animali,' and what is said of this will be true of all; (2) that Gassendi obviously thinks that what is said about the Anima not conjoined with Mens will be true of the composite Anima and mind. In both cases therefore the difference is in the function, not the substance, for, as nothing is subtracted in lower forms, so nothing is added in the higher.

'corpus, id tamen tenuissimum'; the physical body is massa corporis crassioris, and it is only relatively to the crass body that we call the Anima 'incorporeal.' Again, as substance it is a contextura of very subtle atoms, which maintains its unity though extended throughout the body, the heat of the body depends on it, and therefore it must be of the nature of fire, which is also proved by the necessity of heat for digestion and nutrition. This is the reason for the circulation of the blood, namely to prevent it from coagulating and cooling; this process causes a distribution of heat from the heart, while the action of the lungs cools the heat and provides an escape for smoky vapours. The expansive power of heat explains the efficiency of the soul: we shall not marvel that the elephant can be moved by its soul if we remember the force which heat can impart to a cannon-ball! The cold-blooded animals offer a problem which is solved by the concept of 'insensible heat,' and we need not be troubled about the fish, for they seem to lack the right ventricle which is the place of heat (in quo calescere incipiat) and the lung which carries off the adverse humours: hence the fire is somewhat dulled in them (calorem obtundat). Gassendi will not endorse the opinion ascribed to Empedocles that fish from excess of heat took to the water refrigerationis gratia!

(*d*) THE ANIMA HUMANA

The human soul might well be regarded as differing from that of animals in degree only. The objection to this is that it would place the brute creation on the same scale as man, and make their

equality with man possible. The ecclesiastic mind therefore prefers to assume that only the human soul is qualified to receive 'supernatural gifts,' and deduce from that potentiality a distinction of kind. At the same time it had to be admitted that the human soul has a sentient and a vegetative capacity, and is in part dependent on natural generation, so that any explanation which is to be satisfactory must allow for both aspects. Two theories hold the field: the first declares the soul to be a simple substance with dual functions, viz. the inorganic, or those which require no organs (*e.g.* Intellection and Volition); and the organic, which requires bodily organs (*e.g.* Nutrition). This soul, they say, is put in the body by God ready equipped with its faculties: authorities have differed in the explanation of the process which results in the presence of the soul, some ascribing it to a direct act of God, others to an evolution in which the vital seed acts as a medium. The second theory declares that the soul is not simple but twofold, having a rational and an irrational part. This is more in conformity with theology; and the unity is not more incomprehensible than the unity of soul and body, which we are accustomed to accept without demur.

Gassendi adopts this position; but it is impossible to avoid feeling that he regarded the question as one of small philosophical importance, or at least a point at which right reasoning must conform to orthodoxy. On the other hand, apart from opinions on its origin and destiny, the human soul must be a separate subject of enquiry in so far as it fur-

nishes rational phenomena which are not available from other sources. Gassendi tells us nothing of the nature of the 'Anima humana' in the sense in which he determines the nature of the 'Anima brutorum': he seems to have thought that the distinctive features of man belonged to the Animus; and while he is incapable of generating from the corporeal soul of animals the incorporeal soul of man he suggests that the combination of corporeal and incorporeal soul in man is no more or less difficult than the union of corporeal soul and crass matter in the brute. It would seem therefore that man only differed in the degree to which he is divine; and as Gassendi asserts that all life is divine in its degree, it is difficult to avoid the conclusion that he views the whole scale of being as having differences of degree only.

When in *Physicae*, III. 4. 4, he discusses the generation of animals he makes the Anima a continuous existence, so that birth is not a stage giving Anima, but a stage in the history of Anima—a stage at which it becomes individualised, as the Anima of a plant individualises itself when an offshoot becomes an independent existence (II. 279). The rational part, being given by God, cannot of course share this continuity: none the less there is no period when a soul destined to be rational is without rationality, the organs of intellectual activity may not be developed, but these are necessary, 'ut operari anima, non item ut inesse possit.' Thus he renders the distinctive birth of the rational soul unprovable, and even asserts that its emergence at some definite time in the history of the foetus or

the child would be a case of ex nihilo quid;[1] but surely the phrase, 'corporis expers a Deo creetur infundaturque in ipsum corpus,' either implies absolute creation or means nothing at all.

My view of the point is that Gassendi purposely states the received dogmas, with respect, and at the same time intentionally reduces them to futility. Whatever the value of this view may be, it is derived from a careful study of his writing, and I conclude that Gassendi's real view of the soul makes it one in all entities, from the stones to man, but with such obvious distinctions of degree that it is no loss practically to admit differences of kind: the common denominator cannot be shown; and just as a scale of colours is only a scale if we look at it from the point of view of vibrations, but in itself has differences of quality, so life has differences of quality which cry aloud for reduction to

[1] II. 281. *I.e.* because if we could say at such and such a time that the offspring is without the anima, and then afterwards that it now has the Anima, the soul must be educed from nothing. The whole passage is very interesting, but too long to quote. Writing in 1629 to 'D. Thomae Fieno, in Inclyta Louaniensi Academia, Professori Medico Primario,' Gassendi speaks as though he had already made up his mind on the point. At first, he says, I thought the child derived its Anima from the parent, being only an offshoot, like the cutting from a tree (juvabat me exemplum rami resecti ex salice). But this clashed with the testimony of the Scriptures, while it was supported by the evidences of heredity; so the only solution was to acknowledge that the Anima was twofold, and say the Anima sensitiva is ex parente, the Anima rationalis was created and 'poured in' by God, 'statim atque decisione facta, seu foetus seu seminis, rationalis Anima Parentis seu foetum seu semen informare desineret' (VI. 19). This statement is at once more orthodox and dogmatic than that in the *Syntagma*. The real reason for distinguishing the being of the Anima rationalis is the need for a position that will combine the facts of heredity with the truth of immortality.

unity, but cannot be reduced until some other term is found, such that degrees of life can be formulated as its powers. One such 'other term' we have always with us, viz. Motion: it is not the least interesting part of our work to watch the extent to which Gassendi employs it.[1]

(*e*) THE BASIS OF PSYCHIC LIFE

Faculties are natural, vital, and animal: of the animal faculties some are cognitive, and the most fundamental is the sensitive. The word sensus may mean the faculty or the function, the power of feeling or the state of feeling. We have four terms, sensus, cognitio, perceptio, apprehensio: perception, apprehension, and knowledge, if taken in the widest sense, mean the same. Sensus and cognitio denote a more explicit state, *i.e.* a relation of subject and object in which the two are distinguished: perceptio and apprehensio are used for a more implicit state, *i.e.* for what goes on in the subject, whether consciously recognised or not. This is made clearer by an example: suppose a magnet, a flint, and some iron to be together in one place: the iron has a perception of the magnet which the flint has not: again, suppose a goat and a fox to be standing under one tree: the goat perceives the tree (assuming it to have edible foliage) but the fox

[1] Cp. with Gassendi's words what Lotze says in his *Outlines of Psychology* (§ 81): 'At the place where, and at the moment when, the germ of an organic being is formed amid the coherent system of the physical course of nature, this fact furnishes the incitement or moving reason which induces the all-comprehending One to beget from himself, as a supplement to such physical fact, the soul belonging to this organism.'

does not: these are parallel cases, and yet neither is an example of what we usually mean by sensation. Suppose we say 'is vero est sensus qui finiri solet facultas percipiendi objecta sensibilia': we then have a definition which defines both the faculty and the object: consequently relativity is introduced, and we must admit sensibility everywhere: if you say the magnet has not sensus, the answer will be it has sensus for its own particular sensibilia, as the oyster and the monkey in their degree. As there is then no justification for limiting sense to man we must accept this result; but we may distinguish general from special sensibility. The former may be defined as any motile response, and covers the case of all objects not animal—especially magnetic bodies and plants: the latter is sensibility as we know it. There is a distinction between these, and therefore it is confusing to speak of the relation of inorganic things as antipathy or sympathy. Sense taken universally is the capacity for affinities or simply natural affinity: Sense taken specially is not merely a faculty of receiving species, but a reaction in which we know what the species is a species of. This might be called a teleological distinction, for Gassendi recognises that as reactions all sensibility might be reduced to a capacity for reaction to an appropriate stimulus: it would thus be reduced to a mode of motion, and he says it must be taken 'primum universe pro quacumque facultate rei cuilibet naturaliter insita ad percipiendum aliquid, cuius perceptione seu mavis apprehensione moveatur.' In recognition of this he adds that the sensus in animals is one with the vis motrix corpusculorum movendi sive

agendi facultas (*De Sensu Universe*, ch. I.). This activity is not transeunt but immanent, and is a disturbance[1] of the 'sensitive' organ.

It is obvious from what is said above that Gassendi opposes those who translate lower functions into higher. He will not allow that all 'motile response' is sensation. This point is so vital to the understanding of Gassendi and has been so consistently misunderstood (from my point of view), especially in reference to the magnet, that I feel justified in adding still another note to what has been said elsewhere.

I will quote first a passage from *The Atomic Theory of Lucretius*, by John Masson (1884), p. 141, part of a note entitled 'Note on Professor Clifford's theory of mind-stuff as anticipated by Gassendi': "again, because all living things, even the meanest, those spontaneously generated, come from seminal molecules, each after its kind, which have existed either from the beginning of the world or from a later time, 'for this reason it cannot be said that conscious things come from non-conscious, but rather from particles, which, though they do not actually possess consciousness, nevertheless actually are or do contain the elements of consciousness (principia sensus).' Are not these 'elements of consciousness' contained in Gassendi's molecules much the same as Clifford's simple elementary feelings or Mind-Stuff? Gassendi does not, it is true, say that every separate atom contains an element of sensation. In reality, by his distinction between prima materies or non-conscious atoms, and secunda materies or molecules which possess in a faint form the rudiments

[1] Alteratio, cp. Stoic., ἑτεροίωσις.

of sensation, he does not at all escape the difficulty of the origin of consciousness, which indeed he, like Epicurus, very slightly realises.'

My objection to this as an interpretation of Gassendi is as follows. The mind-stuff theory starts from the top and asserts that the mind is made up of parts, each of which is in its own nature mental: it is a theory of the evolution *of* mind. Gassendi, on the contrary, only tries to work out the analogical relations of natural forms so as to show the evolution *to* mind. In the mind-stuff the common denominator is mentality: in Gassendi it is motility. Clifford is far nearer Leibnitz than Gassendi, and Gassendi is a long way from Leibnitz. The difference finally lies in the view one takes of the concept of potentiality, and as we have pointed out this is a concept to which Gassendi takes objection. On Masson's own showing the 'particles do not actually possess consciousness': he does not seem to have understood that Gassendi would not entertain the idea of potential presence, and therefore the statement that the particles do not possess consciousness 'actually,' means that they do not possess it at all. As I have tried to show, Gassendi, for better or for worse, prefers to take it that the peculiar properties of each degree of organic life cannot be found in the parts as they are before they are found in the synthesis of the organism, but supervene on the fact of that synthesis. The effects are data to be co-ordinated, not explained. Gassendi would have said of nature as a whole what James says of mental phenomena, that the square of a plus that of b is not the same as the square of $(a+b)$.

This point is, I am afraid, somewhat laboured. In excuse I plead that it is vital, and has not been understood by those who refer to Gassendi. As a rule we are told that 'at any rate Gassendi says the magnet has feeling,' so we may consider the evidence on this point and take the conclusion as proving the general position. In the chapter on Gravitation we have the problem of attraction on a large scale: Gassendi discusses it on the analogy of the magnet, and we read, 'attractionem verbo fieri a Terra, corpusculis missis, quibus illiciat lapidem, eadem ratione qua et magnes emittit quibus pelliciat ferrum' (I. 345). This, be it remembered, is stated in explicit opposition to the idea that the stone has any feeling after the earth, or any knowledge where the earth is. On page 337 we read, 'videlicet praeter moralem metaphoricumque motorem (the reference is to Aristotle's idea of that which moves as end only) quaeritur quod sit in unaquaque re quae per se agit ac movetur principium actionis seu motionis primum. Neque enim cum puer ostenso pomo ad ipsum currit, requiritur solum quae metaphorica sit motio, qua pomum puer alliciat, sed maxime etiam quae sit intra ipsum puerum physica seu naturalis vis qua dirigitur ferturque ad pomum.' This vis physica cannot be aroused by any but a physical effluxus, and the movement of that which wants to that which is wanted is primarily due to an actual physical relation. Add to this what is said in the preceding paragraph and it will be clear, I think, that Gassendi is not trying to prove that the magnet has a kind of feeling as we know it in consciousness, but that the common denominator of

the whole scale is motile response: whether it is felt or not depends on whether it occurs in a consciousness that can feel or in that which cannot. I may add in confirmation of this, that those who attribute sense to the magnet should also say the earth has sense: which is a phase of the doctrine of anima mundi expressly rejected by Gassendi.

CHAPTER III

PSYCHIC LIFE

(*a*) SENSE AND SENSATION

ALTHOUGH we speak of the Soul as sensitive, there are many facts which seem to prove that the seat of sensation can be more distinctly defined. The Soul may be diverted and not notice an affection of the senses, or it may carry on functions like those of nutrition in which no sense-elements are consciously realised. The conclusion is that the sensitive 'textura' is a part and not the whole of the sentient Anima. This is the first step toward regarding the mind as multiplex, and is in agreement with the views of Epicurus. But a difficulty arises due to the difficulty of keeping the unity of the soul while rejecting its 'simplicity.' Lucretius had said that the soul possessed a particular vis animäi, which implied that it could maintain its existence independent of the body.[1] Epicurus, on the other hand, declared that it had no such cause of sentience (sentiendi causam) nisi quatenus corpus illam fovet. It follows that so far as sentience is concerned, we must take as our unity not Anima but Animal, not the soul alone but the totum com-

[1] II. 330.

positum. In either case the sense-organs need not be regarded as mere channels; but while Lucretius might be so interpreted, Epicurus is quite definite. It is true to say the mind sees or hears, but no less true to say the eye sees or ear hears, just as we say the hand writes. It may seem irrelevant to discuss at this point the question of the vis animae; but the justification for so doing is the fact that at this point we are deeply concerned with the question of the unity of the soul and its meaning. The rejection of a specific and separate vis animae is one step toward the destruction of the view that the soul is simple, in the technical sense. Now, not only has it parts of which the sensitive part is one, but it may be doubted whether this part is a unity without difference. Clearly we have many sense-organs, yet some say 'sense is one'; and of course it is true that the senses are all sense and in that way one, but that is not a useful contention. To say the one Sense uses the organs as a carpenter uses his various tools for various purposes is to make a fallacious comparison. It is the mind that is a unity relatively to the senses; and the opposition of the unitary sense to the many kinds of sensation is a mere confusion added to an assumption. Gassendi here seems to realise the difficulty which attends the reduction of all sense-affection to movement: whether we speak of afferent or efferent activities, we are faced with the fact that motions of different kinds of tissue will not necessarily be different kinds of motion. If differences of motion make differences in sensation, since motions differ only in degree, we are liable to

drift on to the conclusion that sight is an acute form of hearing, and thus be wrecked. Now we cannot give up the point that senses are qualitatively different: we must therefore take that as a proof that sense-organs differ in texture and that the recipient soul is just as manifold as the currents conveyed to it or from it. This is a decision but not a solution of the problem; and we are left with a working hypothesis, not a demonstrated conclusion; but Gassendi seems to realise that sensation as a physical fact belongs to a totally different point of view from that which regards sensation as a psychic fact; and the quantitative analysis of the one cannot be wholly identified with the qualitative distinctions of the other.

The actual number of senses is five: they cannot be reduced to Touch, but they might conceivably be increased in number, and we might even have a sense for the inner nature of things. This is a characteristically mediaeval notion. As it is, our senses only give us knowledge of qualities; but it should be noted that our ignorance of the naturas rerum intimas is not an inherent fault of our way of attaining knowledge, but a question of mere limitation in the number of senses.

Perception is not in the organ, but in the brain, whose media are the nerves. What then is the nature of the nerve? The sensitive part of the organ must be animata, the other parts need only be 'vegetative': it must also be in some way susceptible of touch: these qualities are found in nerves. These nerves must be regarded (after Galen) as a sort of diffused brain, and the brain as a kind of

highly developed nerve: every membrane consists of a sheath covering an inner membrane: the inner part is a chain of soft particles with a hollow centre. The mechanism is not sensitive in itself, for the sensation only arises when some shock to the nerve is transmitted to the brain: this transmission requires a state of tension, and is therefore only possible when the animal spirits inflate these nerve channels sufficiently. This explains the possibility of a physical affection of the nerves having no psychic effect. Gassendi does not appear to consider the question of subconscious states. The 'innervation' caused by the animal spirits is the essential condition of actual sensibility: consequently, physical shocks at the nerve extremities are cut off from the brain altogether unless the innervation occurs. This becomes more familiar as psychology if we describe this tension of the nerve system as 'attention' and say that affections to which we do not attend are not part of our experience. It is necessary here to distinguish appulse as cause and tension as condition of sensation.

Gassendi regards the nerves as not sufficiently straight or tense to be the bearers of sensation (oblique divertuntur et remissiore tensione sunt). He therefore says 'id probabilius videtur peragi rem per spiritum ob continuitatem mobilitatemque': at the same time he anticipates the possible misinterpretation of the phrase 'bearers of sensation,' and points out that nothing is really carried into the brain:[1] it is the motion itself when actually arrived in the brain that is the sensation.

[1] non aliquid immitti, sed remitti potius repellive videtur: spiritus nempe nervis contentus. Bernier translates this by 'rebondissement.'

The nature of the process called Sense-apprehension is thus described. All objects are known through their 'species': not only in the case of sight, but in the case of all the other sense-organs, the species are the media of knowledge: these species are composed of small corpuscula which enter the channels to which they are suitable. It follows from the teaching above, where all sense-organs were asserted to have different textures, that there will be a certain degree of selection, in so far as unsuitableness may prevent some corpuscles from entering some channels. These texturae of the various organs thus serve as selective sieves: the species however have various degrees of difference: over and above the differences which make them unfitted to enter some organs at all, they have further differences which make them pleasurable or painful to an organ which can admit them.

This seems written in a highly materialistic vein; but Gassendi's position is more physical than materialistic, which is to say he works out these problems on mechanical lines without admitting that the result is identical in kind with its original factors. He diverges here from the common line by denying that the species either are or need to be conveyed to the sensorium or central faculty. He says, 'verisimilius tamen est non penetrare corpuscula sensoriis externis allapsa in interiorem facultatem residentem in cerebro sed fieri motionem nervorum spirituumque': which at least refines the material species down to a brain-movement before it is finally transmuted into thought. This modification is important in one respect. If the species were the actual thing, sense-

affection would be wholly and objectively true: if, on the other hand, the thing is not itself transmitted but is represented by a movement, the quality of the movement will be the ground of judgment and error will be possible, as *e.g.* when a man's leg has been cut off he still feels pain in it, though this is clearly not an affection of the parts, but an affection of the central faculty interpreted as coming from those extremities. Gassendi considers that the ἄνευ ὕλης of Aristotle is to be thus explained.[1]

The sensibles then are perceived intercedente motione: as to the nature of these Sensibles but little is said, and most of it is Aristotle; but it is noted that Aristotle's distinction of essential and accidental sensibles is a confusion as the 'accidents' are perceived by the aid of Imagination and Memory. This account of sensation has two points of particular interest. Firstly, the object of the senses is not itself conveyed to the brain, but is symbolically represented by the motion it creates: hence not only is it possible to misjudge the given, but also that which is given may itself be incurably false: Aristotle's saying, 'non falli sensum circa ipsum,' is right in so far as it means sense is what it is, but that will not help us to decide whether it is what it claims to be or whether being what it is as effect it guarantees what we think it ought to guarantee as cause. But of this more later. A more pressing question arises from the general position. As we have already remarked, Gassendi is quite aware that his scale of the Universe is in imminent danger of resolving

[1] περὶ ψυχῆς 424 *a*: ἡ μὲν αἴσθησις ἐστι τὸ δεκτικὸν τῶν αἰσθητῶν εἰδῶν ἄνευ τῆς ὕλης.

itself into a series of disconnected stages: he is continually making 'synthetic assumptions,' taking a stage A, for example, and advancing to $A+B$ with no explanation of the right to speak of $A+B$ as the next stage above A, when all we know is that the addition of B makes A all that it was not before. Sense is a case in point: for however much the common mind may feel certain that plant, animal, and man form an indisputable scale of ascending dignity, it is not philosophic to accept the dogma uncritically: on the other hand, if the problem is squarely faced, it seems to present an absolute dilemma. We might say Life is possible because all is animated and so all is 'sensible'; but this is chaos, a night of colourless reality. Rather than this, Gassendi clings to the reality of distinctions and strives to defend his position. Plants have 'quasi adumbratio sensus' inasmuch as in them too the vital fire burns and processes of absorption and nutrition are carried on: the fact that they require their food makes it 'gratum.' Thus the sophistry of Gassendi! for who authorises that 'gratum'? Is it more than poetry to say the thirsty plant rejoices in the rain? Can I argue that because my boot wants soling therefore it likes it? But Gassendi knows that these scales of existence are artificial constructions, and his own is built on that abstraction called Motion. His second argument is an appeal to Analogy: in all natural development there is an inexplicable element: the whole attains a nature such as was found in none of the parts: when the tree ripens it passes from sour to sweet (a passage from Non-Being to Being almost Hegelian!), and when flint and steel can produce a spark, shall we

doubt that object and nerve may produce a sensation? In short, quantitatively we can keep our scale, if we look to quality our world falls apart at every difference.

Gassendi appears well aware that the results will not seem very satisfactory to those who desire greater continuity. He says: 'Verumtamen, inquies, ex verbis tam multis neque explicatur neque intelligitur qua ratione fiat ut cum neque ipsa caloris, flammulaeve corpuscula seorsim sumpta, et dum in auras excedunt, sentiant: neque sentiant item particulae corporis, quibus flammula inest, ac miscetur: et ne ea quidem communi crassaque affectu, qua quippiam tactu percipitur: quanam ratione, inquam, fiat, ut ex iis commistis exoriatur sensio perceptiove explicita, quam non possumus lucidiore dicere voce, quam cognitionis, ac res proinde sentiens creetur ex rebus insensilibus?' We have to confess our ignorance, but this is only a special case of an ignorance which is manifest in many other directions, in fact, whenever we deal with qualities. 'Neque vero est quare putes posse rem planius et agnosci et edisseri in qualitatibus ceteris: siquidem ubi dixeris fructum ex acerbo, *e.g.* dulcem fieri, etc. . . . ex quo fit ut cum idem dici proportione possit de qualitatibus caeteris, mirum non sit, si cum ipsa quoque Qualitas sentiendi difficilem adeo explicatum habeat . . . explicare non liceat, etc.' This is a very clear statement of the position, and shows beyond dispute that Gassendi admits a complete break, not only here but everywhere between the analytic and synthetic aspects, our analysis and nature's synthesis. His defence of Epicurus is that he did not make the

atoms *incapable* of being anything, and other theorists have not succeeded any better than he did. As a matter of fact we can only go back, in the case of sentient things, to the semen, not the atom, so that 'non posse dici absolute res sensileis fieri ex insensilibus,' that is to say we can uphold that the sensile only comes from the sensile, but only by refusing to go down to our ultimate, by stopping at a complex state (secunda materies) which has attained sensation and declining to ask where *that* degree of sensation comes from[1] (II. 347).

(*b*) IMAGINATION

There is no subject more interesting or more critical for writers of the class to which Gassendi belongs than that of Imagination. The peculiar combination which the activity of this faculty presents in its union of inner significance with outer form, places it in the perilous transition from objective existence to subjective being, and makes it too often the root of those wild extravagances, whose ultimate object is always to confound with material figures of speech the problem of Reason. It is necessary therefore to follow this discussion with care, and try to define accurately the position of Gassendi. With the subject of Phantasia we penetrate into the inner sanctuary of thought: 'sequitur facultas cognoscens interna,' says Gassendi, 'cuius nimirum tota functio sic interius peragitur ut organum nullum exterius appareat.' We now

[1] This is the passage quoted by Masson (*v.* p. 117). Clearly it has a different meaning in its context from that which Masson gives it by taking it out of that context.

deal with the Animus: for 'ab anima quidem vegetatio et sensus, ab animo vero cogitatio et ratiocinatio pendent.'

In the first place we must decide whether this faculty is one or many: for although the dogma of the Fides Sacra is really all we can know, a little additional enquiry will not be heterodox or useless! The division of the Animus called Cogitatio has often been subdivided into Imaginatio, Cogitatio, Opinio, Prudentia, Consilium, and so on. These faculties are however all reducible to Phantasy, which thus comes to mean any activity of thought carried on in terms of sense and its 'imagines.' This raises the question as to whether Imagination is not really the culminating point of sensation, *i.e.* whether it could not be identified with the sensus communis. It has been said, 'What is sense but the understanding of the sensible, or the understanding but a sense of the intelligible?' (cp. Aristotle's phrase,[1] *θιγγάνων καὶ νοῶν*), but this was error, and we can never admit that sense and thought are one.[2] The identification of Imagination and the sensus communis may be rejected then, for the following specific reasons: no sense can be made to judge, therefore it is useless placing any faculty of the nature of sense at the meeting-place of nerves to function thus: if there is any central point it must be ascribed to Imagination: knowledge of the functions of sense belongs to something beyond them—a phrase which recalls the phrase of a later writer that sensations cannot sum themselves.

We conclude then that in men we have only two

[1] *Met.* 1072. b. 20. [2] II. 398.

divisions of Animus, viz. Reasoning and Imagination, though some would add Judgment. This addition was due to a false analysis of Illusion. A certain Theophilus, Medicus, though a man of good judgment in other respects, was afflicted with the Imagination that he could hear flute players performing in some corner of his house. It was argued from this case that his judgment was sound, but his imagination unsound; and therefore these were distinct. Here Gassendi shrewdly points out that the Doctor judged as he imagined, and the imagination was not itself wrong, but was made wrong by the error of the judgment of causation by which the internal state was attributed to a wrong cause. Thus the case does not refute our position that imagination and judgment are one: for an illusion is real as a subjective state, and the state of imagination is not an object of judgment, but is itself an affection combined with an activity of judgment, so that the cause of imagination is normally also the object of judgment. This point is by no means easy to comprehend: it involves the following analysis of perception. An object *A* is cause of an inner state *B* of the nature of an image; but as this is a conscious image it is itself, as an inner state, a judgment and *not* a judgment on itself but on *A*, its external cause. If *B* could be judged as an inner state and compared with *A*, judgment and imagination could be distinguished: which we deny, since it involves a double access to the object *A*, namely once by way of the image and once immediately.

We are now fairly launched on the question of

Perception, and must follow Gassendi closely. To return to the question of reducing all faculties to Phantasy—what becomes of Memory? This is really a defect of 'species'; loss of memory means loss of the 'species servatas,' leaving one with an inner world depleted of objects: hence, as failure of memory is failure of relation among species, it seems to follow that memory is only imagination regarded from the point of view of a system of species. Now, what are the imagines or species which thus constitute a faculty co-extensive with empirical knowledge? Perception, we have been told, depends on excitement of the outer organ by a species or 'qualitas sensibilis': the nerves filled with animal spirits are 'spiritual radii,' along which the vibrations travel to the brain. From this results (1) that the faculty of feeling in the appropriate quarter at once knows the object; (2) a vestigium is left behind. Once this function is ended, the sense-faculty cannot know the object again without a second shock. Phantasy however is a higher faculty, and can know the absent thing: this is its final distinction from sense: also its capacity of acting without the presence of the thing proves that its object or ground of activity is in the brain: we must therefore be clear as to these 'vestigia.'

Gassendi asserts emphatically that the cerebral residuum (species, *φάνταϲμα*, visum) is in no sense a thing: we cannot construct any inter-cranial thing which will give the qualities of the object of thought. Colours, sounds, etc., have no typus in cerebro (as a thing might have a typus in cera), but the process

is such 'ut per nervos contractos resilitio quaedam spirituum in cerebrum fiat qua tam cerebrum quam facultas in eo residens percellatur; ideo posse sufficere si id quod remanet cuiusmodi sit ut talis perculsio eius interventu velut iteretur.'[1] The impress must therefore be taken as some effect on brain substance of the nature of a fold (quasi plicam quandam in cerebro factam). This definite result becomes the cause of reflective thought, as it gives its character to those spirits which for any reason move in its tracks: the imago impressa determines what the thought shall be of, but we actually envisage not the brain-fold, but the cause, *i.e.* the original object now become a Phantasma: as we think of an object without thinking of the sense-apparatus or the brain, so in reflection we pass beyond the immediate conditions to what lies beyond. The impress belongs to the brain and the phantasy regarded as a compound: that is to say—when we say it is a brain-state, we do *not* mean it is a state of the brain purely as matter, but as a conscious agent. The materialistic difficulty which might have arisen is thus anticipated by refusing to consider the brain in abstraction from its conscious functions, as though a dead brain were still a brain in the fullest sense. Gassendi cannot emphasise too much or repeat too often his belief that the direct material of thought is purely symbolic of the external reality: only the disposition of the brain itself remains to testify to the action of an object on the senses, and all the substantial nature of things is reduced to a mode of motion of the

[1] II. 405.

brain-substance, out of which we may build again an insubstantial pageant of reflection.

Memory is discussed in connection with Imagination, since it is really only an aspect of the function which preserves ideas. By thus connecting it with his theory of Imagination and folds, Gassendi breaks with those who viewed Memory as a 'storehouse': he says, 'non tamquam vas quoddam concipienda,' and rejects the simile of wax with equal clearness: he admits however other metaphors: videtur ergo potius concipi non male quasi charta munda seu papyri purissimae solium, but the paper is to be considered as receiving folds, not marks. This is a remarkable anticipation both of Locke and Leibnitz, while it savours of much later psychological work. The analysis of the whole process is even more remarkable. The folds, which are innumerable, can be repeated in their order: the new co-exists with the old, and an excitement beginning from any point in the series runs through them all (una plica arrepta caeterae quae in eadem serie sunt, quasi sponte sequuntur). The act of recollecting consists in voluntarily making many folds until by chance we hit on the right one or one in the right series: thus the apparently forgotten may be revived. Folds tend to become obliterated by the number of later folds or by humidity of the brain in old age: memories are good and bad according to the temperament, which here means the degree to which the humid element preponderates. Total oblivion results from material cerebral changes, by which the original folds become entirely obliterated.

We may now survey the functions of Phantasy

generally. They are three in number, namely simple apprehension, composition or division, and Ratiocinatio, a list which proves that the term Phantasy is not to be taken in any narrow sense.

The proper function is simple apprehension without affirmation or denial, the most elementary function of Imagination being naturally conceived as the mere reception of imagines. This mere reception is however not a pure passivity: it follows from the nature of the 'plica' that there is some activity of the organ or faculty: also there is here a principle of unity if not exactly a unifying activity, for Gassendi asks why we imagine one object only when the spirits are agitated in many 'folds,' and bases his answer on the unity of the faculty. This resolution of many movements into a unity is not strictly intelligible so long as the relation between the physical multiplicity and the psychical unity is left without proper explanation. Gassendi also recognises a selective activity, and points out that it is not possible to attend to more than one thing at a time unless the things are in some sense capable of reduction to a unity: as a rule attention, which is physically a movement of the spirits in one particular direction, follows the greatest or dominant movement, though a new movement may engage attention in face of an older and stronger affection.

This treatment of attention looks better than it really is: it might be good either physiologically or psychically, but as stated it is a hopeless confusion. In the first place, many movements might be the physical counterpart of one thought; but if the unity of thought is described as a unity of move-

ment the many movements must be one in themselves and as movements; which is meaningless. Secondly, Gassendi seems to think a unity comprehending the multiplicity is not distinct from the unity gained by omission. For him attention must always be attention to one thing because, being a movement, it can only be in one place at one time. This is at least intelligible as an exposition in terms of place and movement, but it makes the whole theory of attention hopelessly crude, and by itself excludes the mental characteristics which Gassendi is anxious to include in this stage of the psycho-physical life.

Although rooted in experience Phantasy can combine its elements in new ways, *e.g.* the imagination of the Hippogriff. This brings us to the second degree of Phantasy, which is called Compositio et divisio or assensio et dissensio, or affirmatio et negatio. The combination of ideas such as gives the centaur or the golden mountain is a combination of separate ideas: the 'compositio' to which we now pass differs from this in being an assimilation of one idea to a pre-existent group of ideas. It follows that this function is secondary, in the sense that it presupposes groups of ideas (aggeries) and that the process is of the nature of subsumption under a universal. As Gassendi draws upon animal life for his examples we might compare this with the 'Logic of Recepts.' The process is assumed to be purely psychological, and consists in the assimilation of a present idea with a group of ideas accompanied by definite consciousness of the act, and therefore in some degree constituting a 'judicium.' The progress of experience results in various aggregates of 'ves-

tigia' in the brain: no one of these can be called universal, but the common elements in them all may be taken to give a sort of type of the kind. Hence a new perception may be identified as man rather than lion, because, though not identical with any existing man-image, it is more like a man's image than a lion's image. The difficulty of defining this stage of psychic life is felt by all who study the subject: it would be rash to assert that Gassendi made it fully clear to himself. He is however clear upon the point that if the activity is psychological it must be positive. The emergence of the negative marks the fully conscious proposition which is not found at this stage. Thus Comparison, as found here, is mere assimilation: it may be said 'this is sweet' or 'this is bitter,' but not 'this is not sweet.' If we are to refine to this degree, probably the terms sweet and bitter would have to be ruled out, and the psychic affirmative put in the form 'this is such.' Gassendi would say that at this stage there is no proposition at all, and thus save himself from the accusation of such mental atomism as is implied in the divorce of a positive notion (sweet) from its correlative (not sweet). If the second operation constitutes a perilous border region, how much more the third, which is Ratiocinatio, argumentatio, or discursus? But, ne voce ipsa statim offendamur, we distinguish Reason as either Sensitiva or Intellectiva. This is a distinction of kind which once for all settles the difficulty which the Church had found in putting beasts and men on one graduated scale. The differentia of this stage of Phantasy is found in the ability of animals to go beyond the given: they anticipate

results, as when the dog runs from the uplifted stick; or choose between a present and a future pain, as when the ass endures the beating rather than go forward over the precipice. If we admit that the hare can reason that a leap breaks the scent and say with Gassendi 'esse speciem quandam rationis in Brutis'; if we further discover that an animal perceives agreement and disagreement, which is the basis of propositions, where shall we limit Phantasy? The specious answer is to say that we limit it by the capacities of animals, and after all animals are not men. This might have been Gassendi's reply; but he seems satisfied with proving that animals have some kind of Reason without troubling to define it too accurately. The chapter ends with a description of human reasoning which may have been intended to suggest a superiority, but seems more like a closure put on a discussion that threatened to bring Faith into collision with Reason. The discussion on Instinct begins with the definite statement that the Brutes have common notions or general propositions, which are rather innate to (ingenitae) than produced by the Senses. The fundamental faculty is Touch, and the dominant passions are Pleasure and Pain: these are related respectively to the good and the bad, and have as their active aspects attraction and repulsion. The result is a sort of innate proposition (notio sive habitus), such as Faciendum quod juvat, non faciendum quod nocet. The bull moves before the goad *immediately*; but where action is undertaken to avoid a *future* pain, we must admit argumentatio. The chapter adds nothing to the theory of phantasy, but contains

some interesting remarks on the ethics of animal life. Care for the young is derived from the parent's care for itself, the embryo being a part of the parent: this is a provision which has a teleological aspect, being intended to secure preservation of the species (ad generis conservationem). The series of instinctive actions are expressions of subjective conditions: the period of gestation is a state upon which follows the presentiment to find a place for deposit and care of the young: memory, imitation, and a natural sense of the useful are the psychic elements of this state. Gassendi sums up his own doctrine thus: Phantasy is a faculty whose first function is to know; then, secondly, to arouse appetite and, thirdly, motive faculty, whose effects differ according to the means used. These effects include:

(1) Excitation of desires and passions—love, hate, and the like.

(2) Motion of spirits through the body.

(3) Tension of the nerves and muscles.

(4) Agitation of humours as in palpitation and blushing.

(5) Impressio illa macularum similitudinisque et deformitatis in foetu.

(6) External effects of any kind. These are in fact usually myths: external action (as *e.g.* that of the evil eye) is impossible, for the activity of Imaginatio is essentially immanent.

(c) INTELLECT AND ITS FUNCTIONS

I.

The mind or the Intellect of man is no mere faculty: it is a 'pars essentialis substantialisve

Hominis,' and therefore is the same as the Rational Soul looked at as rational without regard to vegetative or sensitive parts. This view is the only one possible if we remember that we must argue so as to prove the Soul's immortality ('viam sternere ad astruendum eius Immortalitatem,' II. 425): it would be simpler to take mens and Phantasia as identical in kind and different only in degree; but that is a priori impossible, as it leads to the admission that brutes might win immortality. The theory that the human anima is a part of the Anima Mundi must be rejected: it does not follow from the existence of stones that there must be a 'forma lapidis' diffused through the universe, nor that the universe has an anima because individual animae are found on it: apart from this, if we admit the universal mind, there is no sense in speaking of it as 'divided' or 'distributed,' since it is not corporeal. The doctrine of Reminiscence, as taught by Plato, is the stronghold of this position, but not impregnable. Why must we have innate ideas? Is it not enough if we have the facultas intelligendi comparandique ideas: we can then form 'notiones anticipatas,' and so have all that is required for the more intellectual functions. Another time-honoured fallacy is the duality of mind taught by those who recognise a passive and a universal (active) part. If the universal part is really other than our intellect, it is outside of our intellect, and therefore an unknown: if it is justified as the condition of our intelligence, it is not thereby proved an intelligence itself, any more than light is proved to be sight by being posited as the condition of sight. This is in fact

regarded by Gassendi as a false attempt to go beyond the intellectual sphere in order to explain its functions: it ends in a hypostasis of mind to explain minds: he himself looks rather to the unity of mind as the source of illumination: we have already found, he says, that a sort of general phantasy arises in animals, which is actually nothing but the co-existence and self-reflection of many particular acts of phantasy: why then may not the light of reason be an immanent light and a self-illumination? (quorsum intelligibiles species non sua quaeque speciali luce perfundantur?).

II.

Gassendi, having rejected both Plato and Aristotle, proceeds to develope his own view. A hint has already been given us in the argument that the existence of a stone is not a proof of any universal form of stone pervading the universe. This argument is somewhat obscure, but it seems to mean that from the point of view of Being, a specific form implies not a general form, but a general substance of which it is the form. Thus a stone presupposes only matter-in-general, not stone-in-general, and the matter is general not in esse suo, but in reference to a special form. By analogy a specific mind will not imply a universal mind, but might imply some entity capable of standing in such a relation to the particular mind as matter does to the particular stone. This line of thought might seem to be leading us onward and upward to a mind above, but the face of Gassendi is toward the origins; and as matter is a name for all existing atoms viewed as unity,

so if we penetrate beyond the specious unity of mind we come upon the ideas in their multiplicity. We must not suppose that by calling the Anima Rationalis a substance Gassendi makes it a thing; he means merely to exclude the views which make it a dependent existence, such as an 'inseparabilis perfectio' or a 'harmonia' must necessarily be.[1] He defines it as substantia incorporea, formam tanquam informantem, and this combination of terms defines our problem: we must first see from Gassendi's statements how he conceives this entity called mind.

Our philosophy has given us an exposition of Phantasy. The first requisite is a distinction of mind from Phantasy. The points of difference are these:

(1) Phantasy is not capable of reflection: the knowledge that we know denotes an incorporeal agent, for it is a movement toward self, while the movement of the corporeal is always toward another.

(2) Many objects of the mind are not imaginable: they are intelligible, and the idea has significance, but no sense representation is possible, *i.e.* we cannot actually picture the sun as having the size which we know it to have.[2]

(3) Our knowledge of universality proves that we have a faculty higher than phantasy: the object here is incorporeal, and therefore requires an incorporeal Agent to know it. Gassendi distinguishes between having universals and knowing universality: as in the

[1] II. 440.

[2] This is not the question of opposition between the sun as it is and as it appears, but of the limits to imaginative reproduction.

case of animals, Phantasy may attain to universals which Gassendi regards as purely psychological; but man is distinguished by having this 'knowledge of universality,' which seems to be simply the existence of the universal at a reflective stage of mind.

In these points the difference of mind and imagination are most marked; but the existence and nature of a higher faculty is made certain by other proofs. Knowledge of God, though not intuitive, demands a faculty that grasps the incorporeal. Will aims at the good, and thereby indicates a faculty capable of rising above the sense level, for which pleasure and pain would be the only ends.

Having thus demonstrated the existence of Intellect as a non-sensuous faculty, Gassendi proceeds to further define the nature of the human mind. As incorporeal and a form, the mind is in a sense ex nihilo, and the passage from nothing to something being an infinite process requires God. This is a declaration of war against the physical dogmas: the categories of science may be adequate if we are only concerned with things whose origin is really only a fresh disposition of matter; but what if our regress brings us to the whole? Can it be treated as we treat the parts? Does not our physical system demand for its own explanation something higher and greater? was not Daedalus greater than the machines he made? Ex nihilo nihil is, then, a category which means that every combination of elements postulates the existence of the elements thus combined: it will not reach to substances themselves, for we cannot show what elements or what combinations are required to produce a soul:

it is for us a limit, and as such has beyond it only chaos, the Not-Being which is its only antecedent.

This production, though ex nihilo, is not unnatural: the propagation of man is ordained in uno ordine, and the production of the soul is in eodem ordine: so long as the phenomenal regularity is observed this remains a natural event. Thus Gassendi's treatment of the soul as an original underived entity does not carry him into idle speculations: it is a treatment which (as he well knows) does not change the nature of the Anima, but serves to define the inadequacy of categories which were in danger of encroaching: it is a treatment also which never admits that quality can be generated out of mere quantity. This last point is most important, and Gassendi never swerves from his position: at this crisis, when we require to unite soul with body, and all the delicate gradations of 'very subtle movements' offer themselves as intermediary links, he sweeps them all away at a blow, declaring 'seu crassum seu tenue sit corpus,' the difficulty remains untouched. The position is acute: mind and matter having nothing in common, the sensitive soul will not serve as a link, hybrid though it be: to ascribe the unity to God is to say less than nothing: we stand before a unity for whose bond we find no 'gluten,' no grappling irons (ansis carentem), and no supreme force. We may well pause to ask what it is we propose to unite, and what manner of union we have to expound?

As to the nature of the soul confusion has arisen through trying to unite entities which had previously been so defined as to admit of no union: this

difficulty can therefore be removed. It consists in supposing that the pure Intelligences, *i.e.* the angels, represent the real nature of our souls taken in abstraction from the body; but why should a human soul cease to be human merely because it is free from the human body? No change of kind is proved, only a change of condition. We have therefore no right to suppose that our souls, like the angelic beings, have any actus purus: on the contrary, the actus of souls is either mixtus or nothing at all.

Gassendi introduces this point of view by simply asserting that there are three natures of things, the purely spiritual, the purely corporeal, and the mixed. This gives us what might be called a concrete as opposed to the ordinary abstract view: for it is no longer possible to assert that the condition of the soul is an imprisonment by which its functions are impaired: its action is what it is, not because of its union with the body, but because of its own nature: it is not forced into an unequal yoke, but joined in a divine wedlock for which it was predestined (ipsaque ad eas nuptias propendeat). The original difficulty was made acute by the emphasis laid on the difference between soul and body: this is dissolved by Gassendi's view, which does not demand that the two should be of one kind, but that they should be, like male and female, complementary. This is a recognition of identity in difference which promises much; but there is one point which qualifies our hopes. It is after all to the sensitive soul that the Anima Rationalis is united; and so 'interventu sentientis corpori uniatur': we

might conjecture that Gassendi foresaw a possible difficulty in the fact that there are many forms of matter to which Intellect does not ally itself: it therefore became necessary to resolve both terms and say, 'it is the nature of Intellect to unite itself to such matter as is of a nature to receive it.' We may not perhaps be able to get much further on the main issue, but it is well to see clearly how much Gassendi really achieves. He is clearly right in taking the unity as his standing point, and not the absolute differences. He cannot be far wrong in asserting that if the unity is (as it is) a fact, the elements must be by nature adapted for the unity. The root of his difficulty is the fact that his terms do not represent these distinctions, but are names for distinct beings, and, much as he strives to get away from this, his factors, Soul and Body, insist on starting into independent realities. Here again the problem is confused by the terms, for corpus is a term which implies more than mere matter, and the union of the Anima Rationalis is ultimately only a union with a corpus in so far as that is previously Animatum (beseelt), though it has a specious appearance of explaining the union of opposites. To me this difficulty is made more serious by the metaphor of the marriage: for that clearly implies a tendency to introduce conceptions of mutual attraction which are confusing. Gassendi's statement that the sensitive soul is qualified to be the recipient of the Anima Rationalis, not because of its tenuity, but because of its function in phantasy, shows that he rejects the attempt to make 'a very subtle motion' identical with a psychic activity,

but equally clearly shows that he pushes back his real problem of passing over from physical to psychical into the more obscure regions of animal psychology.

We may now sum up Gassendi's position. The Anima rationalis is so far distinct from all other entities as to be underivable from them: it is therefore a new creation: on the other hand, its creation is conditional, for it is so united to the Body as to be not merely co-existent (adsistans) but also coherent (informans): this union proves the factors not wholly antagonistic, but it requires definite conditions, and as the unity is also the birth of the Soul (for it is created by God in ordine naturae) it will follow that these conditions enter into its very being.

At the risk of some repetition, which is not alien to the spirit of Gassendi, we must further elucidate the nature of the Intellect by stating what our author calls its functions. The spirit of Occam inspires Gassendi to limit the machinery of thought: he identifies Anima Rationalis and mens in opposition to those who regarded the Intellect as a distinct faculty or an instrument: he rejects the distinction of active and passive unless agens be used to mean direct thought and patiens, indirect or reflective thought, where since the mind acts on itself, there must be some right to speak of it as receiving action (nata est recipere actum a se productum).

Ultimately Gassendi recognises only two faculties as required for the function of understanding. The phantasmata are the only objects: these are sensible

species, but they can be understood, and there is therefore no need to interpose the so-called 'intelligible' species. Whatever the difficulties may be in the way of asserting that sensible species are capable of being understood, it is clearly better to take up that position than to assert that the understanding can have no objects except such as have already been understood. This introduces a point of considerable importance. The so-called 'intelligible' species were a distinct class of species which, as opposed to the sensible, were qualified to be the content of the mind; but how qualified? Apparently by being in some way the world of mind; but if we take a functional view of the mind, this reduces itself to absurdity, for the content of the mind will be its own functions, its only inducement to action will be the actions themselves, and knowledge will be impossible. This view of intelligible species, therefore, must be rejected if we once give up the idea of a mind which stores in itself pictures that are 'intelligible' before the mind understands them: we can only say species are intelligible in the sense in which *all* species must be intelligible, *i.e.* capable of being understood.

The rejection of this bridge over the gulf necessitates further explanations. If the notion of the mind as envisaging pictures of the intellectual order is objectionable, the situation is made even worse by substituting pictures of the sensuous order. Gassendi sees this and proceeds consistently: he takes a functional view, inasmuch as he regards ideas as actions rather than things; but his idea of function can only be interpreted in terms of motion,

and to these terms the 'picturing' of phantasy must be reduced. The image and the idea are now no longer opposed entities; they are both motions, and seem ultimately the same motion. In the case of sight we have a sense process ending in a perception: by analogy we may have a process of phantasia ending in an intellectual activity. Phantasy is subject to appulse, but intellect is not: the phantasy is the end of the motion of spirits, but in addition to the perception there arises a conception: in eodem momento intellectus contuetur, says Gassendi,[1] and if we take this with what has been said above of the self-illumination of ideas, it will be seen that contuetur means perception from the point of view of a system: this action of mind is a reaction, and by its nature cannot be explained as identical with a motion ab extra: the passage from corporeal to incorporeal must come somewhere, and in spite of long delay, it remains at the last an unique process. The terms in which Gassendi states the relation of Intellect to Imagination are so far from conveying any very definite idea that it may be best to elaborate his position. He seems to mean that the agent, whatever it be, of intellectual processes is so indivisibly one with the nature of man as thinking being that any disturbance of any part must imply its activity: a thrill runs through the whole mass if the appulse once disturbs the equilibrium of the sense machinery (dum phantasia percellitur, ipsi coagat intellectus). To this we may make a most important addition, viz. the converse: for if the intellect acts, the Imagination responds as best

[1] II. 450.

it may. The idea of God is not derived from the senses, and yet cannot be presented in thought without a sensuous form. Hence, from the point of view of physical analysis, Intellect and Imagination are not distinguishable: Gassendi therefore adds the proofs that they are not identical, the most important of which is the direct consciousness that understanding goes beyond sensuous forms, that we mean more than we can put into the sense forms: if we present God in anthropomorphic fashion it is not the human form that is of prime importance, but the concepts which we thus embody.

(*d*) THE HABITS OF INTELLECT

If any doubt remained as to the extent to which Gassendi regards man as an organic unity, it would be dispelled at once by the tone of this chapter. The so-called Habits of the understanding are really habits of the brain: habit presupposes a substance with some rigidity; and we must fall back on Phantasia and the doctrine of vestigia to supply this want. It follows that in memory we may have what are really products of Intellect, for the Intellect creates a symbolic phantasy to enable it to recall non-sensuous facts through a sensuous train of ideas. All failure of the understanding to receive its ideas are failures of this cerebral machinery: if we suppose that there is a memory belonging to pure Intellect, it would not be possible to explain defects of memory, which are experienced quite as much in the non-sensuous as in the sensuous sphere.

This polemic is really directed against some con-

temporary Platonism: it is therefore introductory to the description of knowledge, and seems to clear away all prejudices in favour of Reminiscence or innate ideas. Three types of knowledge may be distinguished: God knows intuitively by pure reason and 'ideas innatas': angels know by virtue of 'ideas concreatas,' a limited form of intuition: man requires the discursive reason which deals with ideas furnished in Phantasy, and ultimately derived from sense.[1] Without Intellect Phantasy is blind (Phantasia ab initio sit quasi caeca seu specierum omnino expers): it has 'percepts' in a sense, but its species represent only the 'externos cortices' of things; the Intellect surveying these species and detecting the nature of some (perspectis aliquibus possit vi sua suspicari et conjecturam ducere de interna aliqua proprietate) proceeds to collect instances, and so by induction arrives beyond the outer husk to the inner core. The result of the Inductive process is a direct intuition: the ideal is to make our Intellect absolutiorem, *i.e.* capable of seeing the whole in the part: so that Plato may be said to have given us the right ideal and Aristotle the right method. Gassendi here follows Descartes in making the understanding move in intuitions; the form of the syllogism is therefore

[1] II. 447. 'videtur mens nostra, seu Rationalis anima donec degit in corpore, non aliis uti speciebus quam iis quas corpus subministrat, quaeque in Phantasia resident: ac tum dumtaxat pari cum Angelis conditione evadere, cum excedenti a corpore, ac Angelorum instar futurae separatae, Deus indit species eiusmodi rerum, quas nosse eius interest, sive ignoratae in corpore fuerint, sive eae sint quarum cognitarum meminisse sit opus.' It is therefore a bare soul that arrives in Heaven, and Gassendi at least means that only in Heaven can we have an actus purus.

only of use for teaching others: the conclusion is to the reasoner consistent with the premisses, and forms with them a whole. As this process ends in self-evident knowledge, Gassendi considers that all the 'self-evident first principles' depend on processes: these truths are products of experience, and all such products would be as self-evident as the 'axioms' if we knew as much about them. The child from its birth sees objects with magnitude, and therefore with parts: hence if the general proposition 'The whole is greater than its part' is propounded and the terms understood, the confused experiences of a life-time leap into being and proclaim it true; it will be equally self-evident that the angles of a triangle are equal to two right angles, when the mind is as familiar with the nature of triangles. Gassendi objects to the common use of the phrase 'natura notiora': as applied to universals it must mean better known by those who know them, which is to say by us: it is then false, for we know the particulars better: if it means known to nature, it is wrong; and if it means in se nota it is nonsense, for knowledge is a relation. In this last argument Gassendi strikes at a position rooted in a substantive theory of ideas: the tendency to regard thoughts as entities made it possible to speak of ideas as possessing knowledge much as substance possessed its primary qualities, and by the same kind of 'inherence': Gassendi's functional view enables him to see that the reality of the known is to be known, its use is intelligi, and the universals can have no quality of knowableness, except such as our intellectual

experience verifies;[1] and by this criterion we may judge the universal to be 'better known' in proportion as the particulars are better known, or, in other words, in proportion as its content is developed.

The reason why universals appear better known is that we tend to isolate intellect, and it then appears to know its own work best. But the ideas must come from the particulars: if not, they are created by the mind; but why should the mind create universals rather than particulars? It is only by allowing a knowledge of particulars that we can justify the existence of universals, since the universality is essentially relative to the plurality of particulars. In this way the universal idea obtains its merits at the hand of Gassendi. It loses its character as an entity, with universal being, and survives as an idea with more than a particular significance: further than this we need not at present go.

(e) THE PASSIONS

In distinction from the Intellectual part of the Soul called Cognoscens, the term Appetens denotes that faculty by which the Soul apprehends and moves toward the good and bad. The pars appetens, or substantively the Appetitus, denotes both faculty and function, being in fact the *νοῦς ὀρεκτικός* of Aristotle, and comprising both *ὄρεξις* and *ὁρμή*. It might well be called the pars affectiva of the Soul, for it is more than mere cupiditas, and com-

[1] Si notiora et manifestiora sunt, alicui ergo facultati cognoscenti eiusmodi sunt, dici enim quid notum, dici manifestum nisi respectu eius cui innotescat manifestaturque, non potest.

prises all affections: it is also more than will, for voluntas is the name of an action only, and not of a faculty. We are now entering on the psychology of the practical life. As we shall see (p. 162) the question of activity does not trouble Gassendi in this connexion, for he believes that thought is always activity; consequently, the real distinction comes in the nature of the objects toward which the Soul's activity is directed. In the case of the pars cognoscens this object is truth, for the pars appetens it is the good or the bad which the understanding comprehends, and the appetite seeks or avoids. In a sense this faculty is secondary, for it implies knowledge, a cognoscente excitatur et dirigitur. In accordance with the line of thought indicated above, where it was shown that Phantasy was subject to action both from without and from within, we may distinguish the affections which come to the mind from without, and those which originate from within. Understanding and Phantasy can act without Appetite (or appetency). It follows therefore that the bodily affections due to appulse are not identical with those called appetite. The point is this: an affection ab extra ends in an idea: it is a motion that produces an image: an appetency is a motion too, and at first sight seems to have no difference except that it goes in the opposite direction (emotion). But there is more than this, for all ideas do not continue into emotions, and the phantasy, we are told, though closely bound up with sense, can act without disturbing appetite. We can therefore think without emotional feeling:

when the intellectual 'feeling' does arouse appetite we have the overflow of motion into the body (appetitus functio in corpus redundet). For example, if I see an apple and do not want it, the motion terminates in perception: if on the contrary I do want it, this want may exhibit itself in the overflow of the spirits into the body: my mouth may water or some other effect be produced.

The meaning of this is quite clear, but it is difficult to understand why a sensuous faculty, such as phantasia, should have any functions that were not in some degree emotional, why we should have imaginations wholly free from any form of desire; and Gassendi seems here to have relied on the distinction of motion inward and motion outward with the accompanying idea that the reversal of the motion would require a definite act of the central organism.

If we can have perceptions without emotions in the sphere of the phantasy, it might be thought that the intellect would be self-contained, and either have no emotions or only intellectual emotions. Gassendi is however clear that an emotion is always a bodily reaction, and he therefore expressly says that even our most intellectual objects, if made objects of desire, must arouse bodily reactions: he is thus opposed to such an idea as the amor intellectualis of Spinoza: quia Deus Rationalem Animam corpori connectens ea conditione esse illam voluit ut non modo res caeteras sed ipsum quoque gloriosum Deum corporeo modo seu corporea aliqua specie quasi obvelatum intelligat, nihil mirum est si voluntas affectu quodam corporeo non modo in alia sed in

Deum quoque ipsum feratur: ac Deus idcirco amari se ab homine ut ex tota mente totaque anima, sic ex toto corde omnibusque viribus jubeat; quippe quasi mens animave amare quidem debeat, sed amorem tamen suum nisi corde viribusque etiam corporeis exprimere non possit.

It must be remembered in this connexion that if Gassendi asserts that the affections of the mind (Animus) differ from those of the body, he is not thereby proving that one is psychic and the other not: it may be a question of the higher and lower parts of the Soul (Anima). Cp. II. 480, 'esse unumquemque speciali quadam temperie ac non modo corpus sed Animam quoque, hoc est inferiorem partem animae, quae corporea est, speciali esse contextura . . . ut in quam rem propendeat corpus, propendeat ipsa anima.' Our likes and dislikes are therefore always psychic: the obscure point is what relation of Animus to Anima could unite the Animus to the Anima without necessitating the reverse relation of the Anima to Animus and a free pathway for motions in either direction. Gassendi says the Soul moves the body: we ask why cannot the body move the Soul?

It is clear that in this point the doctrine of motion has not been allowed to work itself out free from prejudice. The inconsistency, such as it is, seems due to Gassendi's tendency to give the non-corporeal part of man its due position: he even asserts in so many words that the affections of the mind must be wholly different from those of the body, and inclines to over-assert his opposition to a materialistic interpretation of emotions.

The opinion ascribed to Epicurus was fundamentally materialistic. The external stimuli, it was said, penetrated to the senses and reached the Soul: if they were agreeable, the Soul expanded, if disagreeable it contracted, and the Soul being conscious of its own movements, these expansions and contractions constituted emotions. The weak point of the theory was its naïve assumption that the motions of the corpuscles could have any such character as agreeableness or disagreeableness *in themselves* while still on the way to the Soul. It is in opposition to this that Gassendi asserts that the mind must *understand* the impulse before there can be any affection in the proper sense of the term: if this be denied, only expansion and contraction will be left to us, and these do not involve any kind of feeling necessarily. Gassendi did well to steer away from such a shoal, but he can hardly be said to establish an unambiguous result. If we consider the theory further, it will be evident that the rationalistic element which is generated by opposition to materialism, is itself arrested by a distinctly biological vein of thought. Appetite is moved by contact, and is therefore in a sense co-extensive with the periphery of the body: all sense is touch and all touch is either pleasant or painful. Pain is a breach of continuity (dolorem ex ipsa continui solutione oriri): pleasure is the restitution of a normal condition. This normal condition is Indolentia, a mental state of complete equilibrium. Pleasure and pain are states: the active element by which the transition from one state to another is mediated, is called Cupiditas. This middle term causes move-

ment out of the state of equilibrium: it is therefore not necessary that every pleasure be preceded by a pain, for it is possible to go from a state of pleasure into one of pain. The primary affections, Pleasure and Pain, in their lowest forms do not imply intellectual activity: hunger and sexual desires are made unpleasant in order that they may excite actions conducive to the maintenance of the species. In the natural condition the pleasant is the good; but the memory is liable to retain the idea of pleasure and seek the sensation when the conditions are wanting (*e.g.* eating when already satisfied).[1] It follows from this that the lowest stage of life to which we trace emotions, is capable of such intellectual activities as are implied in Phantasia, which is consistent with Gassendi's denial that animals are automata. Those emotions which differ from the primary affections are marked by the presence of opinion: the mere universal is not enough: we must realise that the particular is a good for us: this causes a movement of the heart and so leads to action, whereas a speculative knowledge remains in the head. This seems the high-road to 'popular philosophy,' and scarcely calls for further attention.

We have already pointed out that the 'pars affectiva' can, like the Phantasy, be considered both from the point of view of the activities which it originates, and that of the activities originated in it. Similarly, we can regard the 'pars affectiva' either from the point of view of the feelings which it undergoes or that of the feelings it originates. Pain and pleasure are the fundamental affections,

[1] Cp. Bradley, *Ethical Studies*, on Lust.

and these terms are consequently the most comprehensive. The primary ground of feelings is the actual physical effect which a thing is capable of producing in the organism; but if we are dealing, as we now are, with complex organisms, there will be more than the mere physical reactions which lower organisms exhibit. Hence we find when we come to classify the affections, that pleasure and pain do not cover all the varieties of our experience.

The classification runs thus. Appetitus divides into that which belongs to the 'anima rationalis' and that which belongs to the pars irrationalis. In the former case the appetitus is based on the understanding, in the latter, on the phantasy. As to the former, Gassendi declares that the soul (anima rationalis) has affection of its own such as the pure love of the good, but the abstract nature of this affection, though capable of distinction in theory, is not capable of very exact definition because it is rarely found in isolation. The seat of this affection is in the brain, and it is therefore so united with the general organism that it almost always functions with some bodily reactions. The only practicable distinction of these affections is that they imply a rational activity prior to their own manifestation.

The second class, on the contrary, do not imply the antecedence of any act of judgment: they depend on phantasy and are modified by the action of Will. The species of this genus are very varied, but can be to some extent classified if we take into consideration the elements of which they are composed. The specific forms of pleasure and pain are joy and sorrow, that is to say pleasure and pain

are the states whose effects are joy and sorrow: for it must be remembered that pleasure and pain are terms which primarily denote states, whereas the affection is not a state viewed as a cause of feeling, but the feeling itself. Gassendi here takes into consideration the expression involved in an emotion, and so distinguishes the emotion as an effect from the state or condition which is its cause. If pleasure is directly connected with an object it developes into love: if to this be added the condition of absence or futurity we have the state of desire or hope, from which come confidence and audacity. On the other side, taking pain as our basis, we get corresponding to these, hate, aversion, fear, despair, and pusillanimity. These are the elements which unite to form character.

On the contents of this chapter, which have not greatly impressed me, I quote the judgment of another more in sympathy with the topic: 'Nul avant lui n'avait étudié avec autant de méthode et de profondeur les passions de l'âme . . . il est le premier qui ait ébauché la *science du charactère*, qui a pris une si grande importance de nos jours. Sur ce point, d'ailleurs, comme sur beaucoup d'autres, nul écrivain ne cite les recherches de Gassendi.'[1] Is this true outside of France, or only in it?

[1] Thomas: *Gassendi*, p. 194.

CHAPTER IV

THE NATURE OF LIFE

(*a*) THE VIS MOTRIX

THE subject of motion naturally follows the discussions on the cognitive and appetitive functions. Nature indeed added this power as the complement of the others, that we might not only know and desire the good, but also act for its attainment.

The functions which have been discussed hitherto have been motions, but such as are usually called immanent: our present subject is local motion, in so far as that is related to will, or, to put it more comprehensively, in so far as it is traceable to an inner principle. The line of distinction is not so easy to draw as might at first appear. We are to speak of all changes of place, and these will include not only movements of one body, but also movements of the parts of one body. Among these movements of the parts are many which can only loosely be called subordinate to the Will: for if we reject 'motus cordis, cerebri, intestinorum venarumque,' and confine ourselves to 'motus brachii, capitis, linguae,' we may still find a difficulty in bringing all their movements under the head of voluntary movements. In fact what Gassendi does

is to make the Vis motrix from the first an instrument of Will, and, without trying to make all movements of the parts actions of Will, merely aims at showing how these motions, which we ascribe to Will, are made possible in the economy of nature.

The power of motion is fundamentally one with life: it is 'ex ipsa natura contexturaque animae,' for the soul is by nature a fire (cp. p. 111), and its very life is motion (insita mobilitate vigens).[1] We thus annihilate at a stroke many threatening difficulties, strangling them in the cradle. If the soul is an active principle, activity will be the principle of the soul: we do not require to bridge the gulf from psychical to physical activity, since they will be one in their foundations: it may be that the deeper we go the more real the unity: that the corpuscles rather than the contextura corpusculorum are the real home of the mobilitas; but at anyrate, in the spiritus ignei of our organism (the complex referred to as corpore animato) we find a fit starting point. Gassendi explicitly derives mobilitas from the natura ignea, and therefore, since fire was chosen principally for its mobility, commits himself to a circle: moreover, he considers that a body cannot communicate motion to another unless it be itself mobile, which is reasonable enough, except for the assumptions which it involves: for there could be no motion at all on this theory unless we could find a substance with innate mobility, and that mobility were communicable: these two points therefore have to be assumed. These questions

[1] II. 505.

we must leave for the present, and accept Gassendi's position that the body is a living and moving organism, of which a descriptive analysis (if not an explanation) may be given.

The 'vis' is the inner fire in its form of spirits: its seat is decided according to the place where the nerves arise, and therefore must be the brain, not the heart: motion lags behind thought, because the spirits must be moved through the whole area of the body, and then re-directed to fresh courses. The organ of the vis motrix is the muscular system: a muscle includes vein, artery and nerve, the channels respectively of blood, vital spirits and animal spirits: anatomical experiments prove that the nerve is the mediator or bearer of vis, and the medulla is a subordinate centre or fountain of the virtus motrix from the brain. The nature of the muscular movement has been misunderstood by those who object that a fixed point is required for contraction: the muscle is not drawn up to its head, it contracts in the middle. Now, what is it that the nerve contributes to this action? Gassendi says it is an 'imperium': the essential part of the muscle is the tendon, for that alone has an innate power of contraction: the shock of the incoming current of spirits awakens the dormant power and causes action. This point is apparently considered to be highly important: its significance seems to lie in the fact that it dispenses with the necessity of any power being conveyed from the centre to the seat of action: there is no innervation in that sense of the term: the Mind or Phantasy issues its orders, and nothing more, which is a metaphorical way of

denying *material* activity to the mind. How far this 'imperium' is immaterial when it equals 'appulsus spirituum' is difficult to see, although technically the spiritus are immaterial; but it is clear that Gassendi is content to relieve the brain of the necessity of supplying the force that moves the mass.

All movement is for some end: it applies therefore an antecedent phantasy giving the good as end. Will then may be said to initiate movement, and the difficulties which normally surround that proposition are dispersed if we remember that the Appetitus Rationalis is one with the sensitivus and Phantasy mediates sense and intellect. None the less, 'sunt in hac re tria praesertim admiranda.' They are (1) the choice of the nerves required; (2) the speed of the action; (3) the amount of the mechanical force. The first problem is shirked: it is said that the branching of nerves is never a division of a nerve, but only a dispersion of several nerves joined together: hence any one nerve is continuous, and the spirits will never be perplexed like a traveller changing at a junction: this however is only an explanation of the persistence of nerve-currents in one channel: what we hoped to learn was how the current chooses the right course at first. The second difficulty is settled by saying that a fiery substance can of course act with the rapidity of light! As to the third, the answer has already been given when it was pointed out that the energy stored in the muscle is the immediate cause of the mechanical motion.

The special treatment of the subject of motion

contains very little of interest to the modern reader: even contemporaries must have found its elaborate details wearisome. It is divided into three parts dealing with (*a*) movements of parts; (*b*) vocalisation; (*c*) movements of the whole or modes of progression. The first and third divisions do not require any notice: they are mainly concerned with very elementary anatomy, relieved with the quaint, if unconscious humour, which occasionally crops up in unpromising places. The chapter on the voice[1] is too characteristic to be passed over in silence. In the first place the definition is carefully elaborated: it runs thus: vox proprie est sonus emissione spiritus in ore animalis aliquo affectu incitati creatus. The word 'proprie' excludes the 'voice' of all instruments; 'emissione' dismisses the theories of all those who had not recognised that the act of producing sound is that of expiration not inspiration: aliquo affectu incitati is added to exclude coughing, sighing, and the like. Sighing would seem to be one of the ways of expressing 'affections'; but Gassendi explains that he means 'affectus *animi*': in short, a sound to be properly vocal must be significant and voluntary, following on some definite act of imagination. The mental activity precedes the physical: for this reason the ancients often spoke of the inner voice, but this is not really a distinction of kinds of voices: the inner voice is nothing more than thought itself which the outer or physical organ interprets. There appear to have been some narrow-minded attempts at confining the possession of a voice to man alone, and

[1] II. 520.

among other devices this voice of the mind was invented that man might be distinguished from the animals even in this detail: it would naturally follow that the human voice was generically distinct from that of animals, and capable of surviving the dissolution of the body. This is one more instructive example of the way entities can be multiplied to serve irrelevant purposes. Gassendi's position is comparatively a strong one: as the voice is the servant of the imagination it will be just as coherent in its expressions as the imagination is in its images. Intelligibility is not an absolute quality, and animals are probably intelligible to one another: their language is foreign to us, but so is Chinese, and while it may be 'impious' to say they speak in the human sense, each may be said to speak after its own kind without offence. This correlation of the voice and the faculty of images, puts Gassendi on a firm basis capable of considerable expansion. When we come to deal with the specifically human voice we find the evolutionary aspect tending to obliterate the hard and fast distinctions more natural to this period of thought. The natural history of speech must begin with a stage not so far removed from that of the animals: infants make only vocal sounds: fari non possunt, as the name witnesses; and it is only after time and experience that they reach the varied articulations of developed speech. Gassendi notes that pronunciation is directly related to physical structure: it cannot be learned from books, and in some degree remains always a birthright not to be won by labour. This point was another blow at theorists who vaguely equated the

power of speech with human nature in general and ignored the facts. On the question 'sintne nomina natura vel instituto' Gassendi takes the same view as Epicurus, and avoids both extremes: the primary name is a sound significant of pleasure or pain; but people even in the same place would regard the same thing differently, and hence designate it by different names: so that intercourse would be impossible if convention did not supplement nature and carry out a natural selection of sounds until one object had one name: for succeeding generations this would be a nomen ex instituto acquired through the medium of society.

Gassendi quotes an example of the contemporary science of language which shows that he knew where to stop. The doctrine of natural names had been defended on the ground that the meaning and the motion were often identical. Tu and ego, for example, necessitate movements of the lips outward and inward respectively, that is to say toward you and toward myself! The error which had most to be combated was the use of arbitrary as the opposite of natural. There could be no question to an intelligent mind of arbitrary names: though an arbitrium might be exercised in the selection of words when a language was consolidated, in the early stages such words as became ex instituto would be so from a natural process rather than any direct activity of human choice.[1]

[1] Max Müller, *Science of Language*, II. 382: 'And this, better than anything else, will, I think, explain the strong objection which comparative philologists feel to what I called the Bow-wow and the Pooh-pooh theories, names which, I am sorry to see, have given great offence, but in framing which, I can honestly say, I thought more of

(*b*) LIFE AND DEATH

The definition of life is a task essayed by writers in generation after generation. A broad distinction can at once be made according as the writer takes life in the sense of a thing or a process. If he regards it statically as a being or entity he is not likely to advance far: if he regards it dynamically as a doing or function he will at least be on the right track. In this respect a philosopher who inclines to use motion as his common denominator is guided by his general attitude of mind into paths that may reach the goal. At the same time vita and operatio are not quite identical: it is truer to say vita per operationem patescit, although it cannot be understood sine ordine ad operationem.

Gassendi proposes as his definition 'quaedam quasi usura sive possessio animae facultatisque operandi ipsius,' obviously wishing to combine with the notion of unintermittent function the idea of an agent. It is however a fallacy to try and erect the means of life into Life itself. To define life as mansionem caloris (or calidi innati) is to commit such a fallacy. The calor is really fomentum vitae: it is necessary, but not more so than the elements: though in fact it prevails and is the principium agens. Its activity

Epicurus than of living writers, and meant no offence to either.' *Ibid.* 398: 'Even Epicurus, who is reported to have said that in the first formation of language men acted unconsciously, moved by nature . . . admitted that this would only account for one half the language, and that some agreement must have taken place before language really began.' The 'reported to have said' refers us to Proclus ad Plat. *Crat.* p. 9: *ὁ γὰρ Ἐπίκουρος ἔλεγεν ὅτι οὐχι ἐπιστημόνως οὗτοι ἔθεντο τὰ ὀνόματα, ἀλλὰ φυσικῶς κινούμενοι, ὡς οἱ βήσσοντες καὶ πταίροντες καὶ μυκώμενοι καὶ ὑλακτοῦντες καὶ στενάζοντες.*

is directed to the absorption of the humours, which are the pabulum vitae. All life is creation: the individual is no isolated unit: the stream of becoming flows through him: as worlds, nations, and generations arise and decay, so the individual moves along, dying daily and daily regaining new life. Generatio is continuatio vitae and vita is a continens generatio. Life abides as the flame of a candle, kindling what it burns: its fuel is the humour, itself the flame, but only he can distinguish the one from the other who can separate the burning from what is burnt.

This position carries with it the doctrine that identity is continuity of action: the original seed contains two forces, the heating and the heated: calidum primigenium and humidum primigenium as opposed to such heat as that of the sun or humours such as are obtained in food. From the first then there is a duality which makes action possible. The heat-corpuscles by virtue of their nature fly off and take with them the humid: the consequent exhaustion is checked by alimentation, by which the humid elements are multiplied and detain the heat-elements. The action of the heat-elements is then employed in distributing the new elements throughout the body and renewing its tissues. Life then is the interaction of these two principles, a conclusion which derives its importance from the fact that the current doctrines supported a substantia immutabilis as the secret entity called life. This view was dictated by the false view of identity. In place of a fixed identity we can put the identity of equivalence: a part remains to connect the changes, and the form

is not lost in the flux of matter. From this however Gassendi exempts the pars rationalis. Again, the stages of growth are not reached per saltum: a proportion is maintained and identity consists in this proportion. As the brain also grows, thought-identity cannot be absolute or immutable: empirically at least it is partial: particles vanish and with them parts of our experience: hence some things are forgotten and some remembered confusedly. There is an unfortunate crudeness in speaking, as though an experience could be attached to a brain particle; but it is redeemed by the last trenchant remark that our identity abides because we have never been separated from ourselves.

The processes of life as thus described would seem to be unending, involving continual growth. There are however natural conditions which prevent this. Growth is checked by the hardening of parts which do not permit of accretion as they become closed to the influx of new material. In the midst of life there is death, and it is an error to confine the word death to the act of expiring: death is properly the whole course of failure to assimilate, unless it be violent and due to some extraneous cause. Gassendi discourses at large on all the legends of long life in man and animals and also on all manner of violent deaths: death by drowning was thought most awful, for the soul being a flame is particularly averse to water.

By regarding death as no less natural than life Gassendi touches a question of great importance in his day. His dictum, what has a natural birth has also a natural death, was by no means generally

accepted, and his summary of the opposite teaching is an interesting commentary on contemporary thought. It must be remembered that this discussion does not affect the question of the immortality of the soul.

The common teaching was based on that antithesis of life and death which regarded death as a purely negative term: the reality was life, death an unreality, and some method ought therefore to be discoverable by which life might be made infinitely continuous. At the bottom of this doctrine lies the idea of the World Soul, which, as it is perpetually taken up by us and lost again through the dispersion of particles, might be retained if the nature of man was purified and made perfect. The prescribed process was as follows; the Anima Mundi will remain in the perfect substance: this is gold which can be relaxed so as to absorb from the rays of the sun the principle of life: being thus enclosed in one substance, a vital elixir may be formed from this substance, and the Anima Mundi be conveyed into the body, which gradually becomes purified and perfected, attaining all the qualities which belong to the spiritual body mentioned in the Bible, and fulfilling the prophecy that men should be almost angels, being 'a little lower than the angels.' 'Sane vero,' says Gassendi, 'haec sunt non tam refutanda quam diris omnibus devovenda.' Criticism is hardly necessary even to the extent of pointing out that if gold admits the external principle so easily it might no less easily part with it. The whole scheme is the work of ill-trained imaginations urged on by the desires which are common to all races and all

times. The idea of reducing all things to one form was based on the opinion that, if all things are forms of matter, the matter must be some nature to which all other natures were reducible, and through which they could be transformed into any other given nature. This fundamental common nature x being a universal, its discovery would simplify all the sciences, and especially that of medicine, making possible a medicina catholica, for the unity of the universal nature would admit of a medicine one and universal, apparently because it would make a plurality of diseases impossible. The tyranny of the universal in the sciences has been noted often enough: its power was at its highest when the minds of men were dazzled by new discoveries, and vague generalisations were suddenly quickened into a new indefinite possibility of life by rumours of great discoveries and vague echoes of unearthly knowledge from the dim and superstitious cell of the alchemist.

These two pages give an excellent account of the essence of Alchemy as a magic science. Gassendi also gives us a hint of the way in which Transubstantiation and Transmutation became confused: 'gloriosum Christi sanguinem . . . edixerunt nihil aliud esse quam Catholicam suam Medicinam!' (II. 615).

(c) THE CONSTITUTION OF ANIMALS

I.

The word temperament or temperies which is used by Gassendi to denote the constitution of living bodies was ambiguous in his own time, and has now

diverged still further from its original meaning. The complexity of meaning is however a true indication of the evolution of the ideas the word denotes. The Latin 'temperamentum' originally meant no more or less than the Κρᾶσις of the Greeks, and is convertible with 'commistio': it looks therefore entirely to the physical composition of the body, and is a name for the various ratios which may hold between the elements in any 'totum compositum.' None the less the purely physical aspect never excluded the idea of character, which again, though applicable to all things, tended to become restricted to psychical character. In this way a natural course of development carries us over from elements and atoms to characters and dispositions.

The doctrine of Temperaments is a characteristic element of mediaeval thought: its vagueness gives it a tinge of mysticism: it seems to unite the two worlds of mind and matter in one comprehensive grasp, and links the characters of our acquaintances with the day of creation and the emergence of atoms from chaos. Looked at from one point of view, mediaeval thought will be seen to have no lack of breadth: dogma was indeed a constricting power, but it did not suppress the longing for universal terms in which to state or solve problems, nor impose its precision on minds that found much satisfaction in undefined thoughts and over-defined diction.

Though the subject of temperament may now be said to have vanished from what we usually call philosophical works, much of what the mediaeval thinker collected under that title can be found in modern form in works that deal with the concrete

individual, with the natures and dispositions of children, hygiene, adolescence, and the like, and we find in books on these topics a growing tendency to vindicate the relation of physical to psychical characteristics in that concrete way which the theories called 'psycho-physical' rarely or never attempt.

If we now turn to Gassendi's pages we find that he begins with a summary of qualities, enumerating three different classes, and then states quite generally that all qualities owe their origin to the 'temperies,' and as the temperament is so will the qualities be. The chief reason however for discussing the question of temperament is that we may be able to advance to the questions of health and disease, which are only natural and unnatural conditions of temperament. In a sense the temperament is life, for it is that equilibrium which must be maintained, and which admits only a limited degree of disturbance.

The history of the theory of Temperament divides naturally into two periods. In the earlier the question is mainly of elements, and always of some form or other of matter: in the latter chemical principles take the place of primaeval elements. If any one finds this a distinction without a difference, and complains that chemical principles are a form of matter, he must recollect that such was not the attitude of the fourteenth century, when men were most at home with 'dead matter,' and felt a difficulty in classifying many of the chemist's discoveries.

Those doctrines which take as their basis either atoms or elements, go back to the earliest days of Greek thought. They have however many difficul-

ties. The nature of the combination is a fundamental problem: the result has to be a mean of some kind; but if we deal with either atoms or elements as irreducible ultimates, they must either (like grains of corn) be simply co-existent, or they must interpenetrate. Co-existence clearly is not what is wanted, and interpenetration implies that two bodies occupy the same space. On the other hand, qualitative difference is not obtainable if the elements are all homogeneous: water added to water only gives a difference of more or less: our combinations must be different in kind, analogous rather to the mixture of wine and water. This is in fact our type, and we must explain the mixture as we have done in discussing qualities, by introducing the concept of intension. We have here really two questions. One is of the temperamentum ex primis principiis: the other of temperamentum ex contrariis. The former goes deeper than the latter, and is an ulterior question, the decision of which hardly affects the second. Gassendi proceeds to deal with the latter. As a theory it is really independent of the particular given matter: it rests upon a category which may be taken formally. Any combination $x+y$ satisfies the conditions if x and y are contrary. Hence there is no a priori reason for taking only those four, earth, air, fire, and water, to which the discussion is usually confined. That choice is dictated by irrelevant considerations of the physical constitution of the universe: so far as our category goes, we might employ such opposites as light, heavy, smooth, rough, and the like. Avicenna indeed seems to have been confused, and perhaps others with him: they

took the four elements as typical of four qualities, and so were led astray, speaking as though the qualities might change and mingle, whereas the true view is that of Galen, who refused to divorce quality from substance, and remained on firmer ground in trying to explain the Temperament (Κρᾶσις) as an interrelation of substances (Galenus probandus dum elementarum substantias misceri totas per totas dicit).[1] These points we leave and simply admit four substances, a hot, a cold, a wet, and a dry, which, wherever they have obtained their qualities, are mingled and tempered. Their mingling results in some corpus (lapis, planta, animal), and we may define a temperament as 'congrua calidi et frigidi, humidi et sicci mistura.' This dogmatic solution of the question seems dictated by the medical views of the time on humours and diseases, which Gassendi was probably not in a position to criticise. According to Galen, temperaments may be distinguished into nine kinds, one the canon or norm, the rest abnormal, due either to excess of one quality (which gives four kinds) or of two (giving four more). A temperament may be too hot or too dry (siccum et calidum), but cannot be too hot and too cold (calidum et frigidum): these eight are therefore the only combinations possible. The mean temperature is itself twofold according to Avicenna, namely universal and specific. The universal is ad pondus, *i.e.* a typical form assumed as the nature of universal substance and determined quantitatively, the mixture comprising mathematically equal quantities of the four opposites. This however is condemned by Galen as purely

[1] II. 551.

theoretical, and if it existed it would be a pure equilibrium which could exhibit no action and no metabolism (neque si qualitates sic temperatae existerent actio exseri ab illis ulla posset). The second or specific kind is ad justitiam, a proportion which realises a mean, and which, while being the same in the sense of always being a mean, is not absolute quantity. This kind varies with the nature of the being and the different ages of the same being, but in such a way as to maintain its chief characteristics. There will be degrees of better and worse in the types thus realised, and therefore we may derive from this a true type without assuming the typical absolute type ad pondus. Every animal is heterogeneous, and therefore its temperament is complex. Some of its parts are fluent, some fixed: the fluent are called humours and their excess gives the four types sanguine, phlegmatic, choleric, and melancholic: the fixed comprise the 'partes spermaticas semineasve et sanguineas': the spermatic or ex semine formatae are bone, cartilage, ligament, tendon, nerve, artery, and membrane: those ex sanguine procreatae are the softer parts, heart, kidneys, liver, and lungs. The whole has a harmony of its own, and the whole animal is a well-ordered republic.

II.

The progress of knowledge tended to relegate to the limbo of myths all the ancients had said about elements. The Chemists substituted for principles and primary elements their own chemical elements. Into the details of this doctrine we need not penetrate: in the place of the four elements five

substances were recognised as the elements to which all things could be reduced, and from which they must therefore have arisen. Gassendi is not concerned with the value of this position as a scientific doctrine, but with its philosophic import. He obviously regards it as pretentious, and his criticism is an interesting composition of views on the nature of things. There are four direct charges against the doctrine; the authors of it cannot agree among themselves as to the number of ultimate principles: special properties of natural objects, such as the healing power of dictamum or the deadly cold of hemlock, remain unexplained: no explanation is given of the form of organic and inorganic products; and all the higher qualities such as sagacity are completely overlooked.

Though these are details, they involve a principle of the highest importance. The merely scientific mind takes its stand on analysis: the chemist says 'analysis gives such and such elements, and therefore, unintelligible as it may be, these must be the source of all that we see.' But when is an analysis exhaustive? If the chemists laugh at the ancient physiologists, what will future ages say to the chemists? The assumption of finality is mocked by progress; and the progress we boast is part of a movement to which we must succumb—a sentiment that recalls the saying, 'the evolution of thought is part of the whole evolution.' When is an analysis exhaustive? Probably never, but at any rate only when it admits of an adequate corresponding synthesis. Gassendi shows that he clearly comprehended this great principle. The chemist, he says, would

laugh at a surgeon who declared that the living being was no more than a sum of the parts which he could dissect and display. If we try to make our analytic of constitution a complete explanation of life, failure must necessarily ensue.[1] The reason is clear: we strive to exhaust in terms of sense what is not given to the senses: we cannot reach the ultimate because the torch that lights the intellect fails us on the road.[2] For this reason it is useless to substitute for principia any imaginary sensuous agents such as mechanical spirits: the complexity of life in all its forms, with all its endless adaptations, cannot be explained by mechanical agents unless we abuse the term and ascribe to such agents properties which are foreign to mechanism. The construction of a palace appears to us marvellous with its endless processes: the wood has to be brought from the forest, the stone from the quarry,

[1] This is one of the finest passages in Gassendi. The chemists, he says, would laugh at a surgeon who said the body could only be divided as far as anatomy divides it: they would say '*we* can divide still further'; but 'quemadmodum sit tibi chirurgus ineptus . . . sic ipse videaris futurus ineptus . . . ineptus, inquam, ipsi Naturae.' Even this more penetrating analysis cannot get to the bottom of things: 'utcunque ergo nactus sis huiuscemodi quod dissolvat agens, non magis tamen nactus es agens quod ab eo secreta compingat, quam chirurgus ille organum quod parteis scalpello secretas adunet. Atqui est praeterea in Natura agens quod compingat coadunetque.'

(adunare is Gassendi's technical term for the producing of unity by composition: it really denotes more than compingere, indicating the view of the result as a whole, while compingere remains at the point of view of the parts as being welded together.)

[2] II. 558. 'neque intellectus, tanquam praeeunte face destitutus penetrare suo acumine potest in illorum substantiam.'

'Sensibus destituimur quibus praeeuntibus Intellectus sua acutie principia huiuscemodi deprehendat, assequatur, prolustret, introspiciat' (559).

and all the parts have to be shaped and fitted together; but in this case we see the agents, architect, masons, and woodcutters, and, if we still find cause of wonder in this, how much more should we marvel at the construction of a living body where all the agents are unseen and the structure has to be maintained by incessant repair![1] We must not think that we can exhaust nature: there is something that does not fall in the range of human powers, and while we cannot completely explain Nature we must so far bow before it as to acknowledge that the whole is more than the parts, the synthesis greater than our analysis.

This criticism is strengthened by the restraint it shows: it ends in no dogmatic introduction of a creator which science might require to have demonstrated: it is intended only to define the limits of science.[2] The question arises, are those limits necessary or contingent? No distinct answer is here given, but Gassendi seems to consider that in time (perhaps infinite time) the unknown might become revealed, not to sense alone but to an intellect guided by sense. After this philosophic digression, the treatise returns to the question of diseases and their cure, medicine being the science to which the doctrine of temperaments is properly ancillary. For our present purpose this part of the subject is superfluous.

[1] II. 557.

[2] nullo non sacculo Natura illud homini insusurret aut potius inclamet,

'Tecum habita et noris quam sit tibi curta suppellex.'

But 'nihil sit desperandum de humani ingenii sagacitate,' II. 560.

PART III. ETHICS

CHAPTER I

ON HAPPINESS

I.

THE student who enters on the task of discovering Gassendi's views on ethics has before him a problem of considerable magnitude. The mass of quotations is enormous: repetition is frequent: and the main line of thought is obscured by the two-fold purpose of defending and at the same time modifying the views of Epicurus. The whole literature of the subject is ransacked: the Greek philosophers are quoted in almost unreadable type: passages from the Fathers and other authors innumerable occupy whole pages: while the doctrine actually supported is obscured by endless polemics against authors now for the most part deservedly forgotten. To represent the learning of the original is almost impossible, while omission of the quotations must necessarily deprive the reader of a true idea of Gassendi's method of treating the subject. The doctrine must however be stripped of this robe of erudition, and perhaps a method that leaves the truth naked will not be without its advantages.

Gassendi's preface states his position. Moral philosophy is not speculative or concerned only

with theory: it is also a scientia activa, a treatise de eligendis et fugiendis, a practical study. It is a theory of Prudence rather than wisdom. As Gassendi notes, the word 'morals' does not quite equal the Greek 'ethics.' The latter indicates more clearly the element of individual habituation; and virtue, though innate, requires education of the soul. Man is solitarius, familiaris, and civilis. Morality is properly concerned with man as solitarius in the sense that the self is the foundation of all, and thus this science is distinguished from all others, such as Politics, which deal with man in his relations to the society or the State.

We naturally expect from this a certain psychological and individual trend in the rest of the treatment. The first book is on Felicity, the second on the virtues, and the third on the kindred subjects of Liberty, Fortune, Fate, and Divination.

II.

The discussion of Felicitas opens in a characteristic way with twenty-seven pages of quotation. Felicity is the end of life, but in what sense? It is really a confusion of terms to make Felicity the summum bonum, for felicity is the possession of the highest good, which must therefore be determined separately. The best of the many definitions of the summum bonum is 'tranquillitas animi,' but we must conceive that as an active state, a living, not a dead repose. It is a permanent condition which must be reached by the mind through its self-discipline. No external means or sensual indulgences can produce the desired state: meditation must free the soul from all care,

especially the meditation of death, which enables men to see life steadily and see it whole. The condition which results is a pleasant state, and therefore pleasure is in a sense the end of life. This statement has unfortunately led to many errors, and it must not be left unguarded: we must find out the real meaning of pleasure before proceeding further.

The defence of pleasure as vitae beatae finem is really a defence of Epicurus, and is put in the form of a discussion on what Epicurus meant by pleasure. Some writers have represented Epicurus as taking pleasure in a bad sense: among these Cicero and Athenaeus are most noteworthy: Seneca, on the other hand, with Plutarch, can be quoted as defending Epicurus. Cicero seems to have been led astray by considering the objects which give pleasures (ludos et cantus et formas eas et quibus oculi jucunde moveantur) and not the state of mind produced. Unless the pleasure as a mental state is considered there can be no distinction of good and bad: for the same outward object may affect different minds differently. Plutarch points out this difference between Epicurus and Aristippus: the pleasure which Epicurus means is of the mind, that which Aristippus praises is of the body. Laertius points out other differences. Aristippus confines the term to pleasure in motu, Epicurus lays more stress on pleasure in statu or tranquillity. This distinction is the root of further divergence. Aristippus considers pleasure of the body the only true pleasure: Epicurus admits or rather emphasises pleasures of mind. The real difference in these views is to be found quite apart from the question of sensual or non-sensual pleasures,

in the problems of Being and Change. As Gassendi points out, Pleasure (ἡδονή) has never had a bad significance in itself. The bad states were such as luxury (τρυφή, mollities). To view the doctrines of either Epicurus or Aristippus from the point of view of moral and immoral pleasures is to misunderstand the whole position: such a procedure is indeed natural to us because we have become used to the morals of the pulpit, which takes morality as the presupposition of its ethics: before the religious dogmas became thus fixed ethical enquiry was the means by which men hoped to attain a concept of the good, not bolster up with theory what they had already determined to support. Thus it is a hysteron proteron to condemn a pleasure as immoral, for the pleasantness may prove the criterion of moralness. It is true that the teaching both of Epicurus and of the Cyrenaics was liable to be used as a justification of sensuality; but originally these thinkers were more concerned with other problems, and especially whether a pleasure could be anticipated, which Aristippus denied and Epicurus affirmed. The kind of dialectic employed here can easily be imagined. Is the pleasure of anticipation a future pleasure or a pleasure referred to the future? What is the relation of time involved in this? Is not all pleasure present pleasure, and will it not therefore be advantageous to concentrate our powers upon the present? Is not rest a ceasing from action, and therefore from the (active) enjoyment of pleasure, a lapsing from life to nirvana? At this last point the externality of Aristippus' view shows itself only too plainly: the quies or rest of contemplation is not a ceasing from

all action: it is the highest activity, though it may not go beyond the subject. In these differences of opinion about becoming and movement we must look for the roots of the more superficial divergences of Epicurean and Cyrenaic doctrine. If we can get rid of those ideas of pleasure which attach themselves exclusively to the senses, we shall see that in its broader sense pleasure is the very essence of life. This broader sense Epicurus must have taken: he considers pains of mind greater than pains of body, and never ceases to insist on the place due to pleasures of mind. Taking it in this comprehensive way, we may say virtue and pleasure are as inseparable as the sun is from the day: true pleasure flows from virtue, and they are by nature one (virtutem esse causam felicitatis effectricem).

We may pause here to ask what is meant by 'true pleasure.' It seems as though vera felicitas was an ambiguous term in Gassendi. So far as we concern ourselves with pleasure, true must either mean belonging to a normal constitution or must carry with it suggestions of some criterion other than pleasantness. We may of course take up the narrow position of some critics of psychological hedonism and say that pleasure admits of no modifications except in the way of quantity. But this criticism, if relevant to later doctrines, would not touch Gassendi, whose whole attitude of mind precludes the possibility of so abstract a view. He would consider it a mockery of moral philosophy to set up pleasure in the sense of pleasantness, felt pleasure, as end or criterion. It is not enough that you as man find pleasure in the deed: you as moral subject must first prove yourself

a fit judge. This brings us in sight of an old circle: we seem on the verge of being told that we ought to pursue pleasure and that we ought to find pleasure only in that which we ought (for other reasons) to pursue. We do in fact end in a dictum like that of Aristotle: a true pleasure is such as a true man feels, and if this avoids the difficulty of the man who finds happiness in evil, it none the less gives us a concrete norm.

Gassendi's solution, if such it be, of the problem exhibits some familiar elements. To go back to the question of kinds of pleasure. Though some say all pleasure is good, all pain bad, it is true that sometimes pleasure is postponed to pain and vice versa. The fallacy is discovered in the absolute use of the term pleasure: Epicurus recognised several kinds, some in tranquillitate, some in motu, including profligatorum voluptates. But this is not quite an accurate statement: pleasure is not quite a motion, it is rather 'condimentum actionis,' a pervading sweetness. Moreover the suggested distinction of motus animi and motus corporis is false: if the mind moves there must also be corporeal movement. Is pleasure essentially good (sua natura bonum). Epicurus thought so: Antisthenes denied it: the Stoics classed it as indifferens: some distinguish good and bad, and some say it is good, but not the highest good.

The conclusion runs thus: all nature seeks what is natural to it, and therefore seeks what is good and pleasant. Bad pleasures must then be due to some taint and to the fault of the agent. As the good is per se attractive, all pleasures must be

desirable. The reason why a pleasure is rejected is generally some anticipated evil consequence, *e.g.* when we refuse to eat the honey because we suspect that it is poisoned.[1] The proof that animals have connate desires for what is pleasant is taken from Cicero. About this there are two points to be noticed: these connate desires are apparently to be regarded as conscious purposes but without proof of this consciousness: secondly, the passage in Cicero makes the end self-love not pleasure. It is obvious that, do what we may to clarify Gassendi's statements, confusion must remain, for we have no clear distinction between three very different ideas.

The Good may mean

(1) That which is good for the animal according to the divine plan, or in the sight of God. This may be different for each being, but it is such as fulfils that creature's wants, if those wants be regarded from an external point of view, such as might be ascribed to God.

(2) That which is good for the creature who regards himself as part of a system and has a rational comprehension of ends higher than his individual satisfaction.

(3) That which the creature thinks to be his good.

Of these three the first is not properly in the sphere of ethical considerations at all, while the third is a question of illusion, since it is always practically assumed that the agent chooses under some conditions that warp his natural judgment. In trying to define the end as both good and pleasant Gassendi errs (in good company, too) by

[1] II. 695.

not seeing that he is arbitrarily modifying both terms, the chooser and the chosen. Doubtless, given a man whose pleasure was in the good, the good would be to him pleasant; but an ethic that modifies both terms ceases to be practical: it becomes imaginary, speculative, and abstract. Love of God, says Gassendi, is in the highest degree good and pleasant: he means presumably that it ought to be if it is not. If we revert to man as he is, can we still maintain these statements? Gassendi thinks we can, and that is just one more instance of the latent universal. The keynote to the whole position is to be found in the phrase, 'omne animal e natura sua sic comparatur ut natura duce nihil prius requirat': where natura is clearly taken in abstraction, as though there were a natura possessed by all creatures and capable of being held over against the sum of desires. Such a natura is a deduction from observation, and even if we allow that man might oppose his idea of the nature of man to his actual nature, as expressed in his desires, it is clearly absurd to read into the existence of the animal a duality which reflective thought has constructed. Gassendi has not properly comprehended the fact that he encroaches on the metaphysic of ethics in taking the question in this universal way. There is however another side to his argument, which must not be overlooked. He is concerned to prove that a good is no less a good for being associated with pleasure. In words that remind us of Locke's well-known phrase, he attributes the association of goodness with pleasure to the act of God. This seems to be supported by

such considerations as the union of goodness and pleasantness in the acts of procreation or feeding; but it is significant that the position finds most support from those forms of life which are furthest removed from full consciousness as we know it, and for which the goodness as such is presumably non-existent. If we press the question we fall into paradox: self-sacrifice we find is made for the pleasure it gives: if Brutus killed his sons it was because his sons were such as Brutus disliked, and therefore it was a pleasure to Brutus to kill them: a statement that shows that Gassendi was badly in need of a distinction between what is pleasurable and what is preferable.

III.

We should almost expect from the position assigned to Pleasure that it would be pronounced the end of all action. This is modified by a distinction between goods which are classified as honestum, utile, and jucundum. The third class is always chosen ob voluptatem: the others may not be. Psychologically voluptas accompanies desire, and desire is generated by want. The want comes first, and the object is chosen as satisfying the want: pleasure ceases with attainment, which in turn generates a new want. This third class, things jucunda, is meant to include those that satisfy bodily wants. The first two classes generate pleasure, because their absence is a want. Of these the class Utile comprises objects which are not pleasant as acts, but are sought with reference to the pleasure to be obtained from them. Cooking, building, and

singing are examples. The highest class honestum, including all honores, causes some difficulty. It has been said that these must be chosen 'for themselves': the honestum is per se dignum. But the worth is not impaired by any addition of pleasantness; and the desire to divorce the two is really due to a confusion between seeking a high position and seeking the material advantages of position. The honestum must be at least a permanent spiritual attainment: it is only a low mind that seeks the material advantages by themselves.[1]

IV.

As we foresaw, the practical solution of the question What is the highest good? has to be attained by taking a concrete example. Though not explicitly stated, Gassendi clearly holds the opinion that you know the good man when you see him. In the chapter headed 'solum sapientem virtutem moralem amplecti,' we have an analysis of the good life from which we may learn the nature of the highest good. This life is 'maxime naturalem, maxime obtentu facilem, maxime durabilem, maxime poenitentiae expertem.' It is based on tranquillitas animi, which is not a state of death, but of sustained equilibrium:[2] in it all desires are regulated

[1] With this idea of the plebeian mind seeking praeter lucrum nihil there is a close parallel in Ruskin, *Crown of Wild Olive*, § 32: 'In every nation there are a vast class who are ill-educated, cowardly, and more or less stupid. And with these people just as certainly the fee is first and the work second, as with brave people the work is first and the fee second.'

[2] 'non voluit Epicurus tranquillitatem esse quasi merum torporem, sed voluit potius esse statum in quo omnes vitae actiones placide simul et jucunde peragerentur' (II. 716).

and co-ordinated: its end is final, an end in itself, not creating a condition which is self-destructive, but a persistent state. The good man will prefer the contemplative life, but not in such a way as to prevent him from sharing in the activities required of a citizen. In short, the ideal is the familiar wise man of the Stoics; but there are certain modifications which detract somewhat from the sternness of that ideal. To suffer pain bravely is good; to escape suffering is better: goods of mind are most excellent, but goods of body may be added. The key of happiness is temperance, and the motto of life should be parvo contentus. This is the tone of an uncertain age, adopting in its anxiety the lesser evil. It suited the unstable conditions of life that inspired Stoicism: it appeals to men still, and cannot lose its charm so long as fortune remains fickle and life is a waiting for death. Yet would not wealth be happiness if secure? is it not better to live on a higher level, having more and spending more? The Roman Empire gave birth to a sick man's ideal: the sage was to want little because little was to be had, as the dyspeptic[1] puts away his desire for the full meal of the healthy: of mental pleasures he might take his fill, for the hand of the tyrant could not rob him of his store, but the goods of this world he was to despise, for they were insecure.

The conception of life which comes down to us from Epicurus is one of extreme simplicity. It is easy, we are told, to get what is necessary, and

[1] This is meant purely metaphorically: it has however been suggested that Epicurus' mode of life was a 'dietetic experiment.'

therefore life according to nature is always possible. A quotation from Porphyry[1] shows how little there was of 'Epicureanism' about Epicurus. Gassendi accepts the natural life of Epicurus as the model: he is content to prove that his teacher meant by pleasure something more than self-indulgence, something lofty, spiritual, and in the highest sense moral. This is good as an apology; but if we are to accept Gassendi as an independent teacher, it seems impossible to avoid condemning his position as weak. Mere transference of an ideal from one age to another must necessarily be weak and shallow: it implies an abstract attitude of mind refusing to face the new conditions and new problems that time unfolds: in spite of those elements of life that are always with us, and those truths which have been uttered once for all, such antiquarian lore as fills the pages of Gassendi can only be disappointing to a mind that looks for a theory in touch at least with its own age, if not of value to later generations.

In one respect perhaps this hardly does Gassendi justice. His insistence on the point that Pleasure is not opposed to virtue, that we may be both good and happy, was not merely the formal statement of the Epicurean as opposed to the Stoic ideal. Asceticism was still an ideal, and in general men were impressed with the idea that the phrase, 'virtue for its own sake,' had a meaning. What it had come to mean was that virtue was best by itself, best if you mixed it with nothing, best if taken in abstraction from the world and all that is

[1] II. 729-730.

worldly. Against this Gassendi preaches the right of all things in life to their due recognition; he would have said, with much the same shade of meaning, that it was 'better to be worldly than other-worldly.' Gassendi's biography shows that he drifted away from the Church: it was the Church that had divorced virtue and the best life.

CHAPTER II

THE VIRTUES

THE treatment of the special virtues, though containing much that is too trite to need recording again, adds a few points that are necessary to complete our view of the Ethics.

The word 'virtue' is not to be taken to denote manliness, as its derivation might suggest, or a specific function, such as is meant in phrases like 'virtus equi.' By virtue is meant a habit of the mind by which we are rightly disposed toward our affections. It would have been more accurate to have said organism instead of mind, and it is clearly necessary to take animus here in a sense that includes reference to the bodily conditions. A habit or condition must not be confounded either with a faculty or an affection, says Gassendi, with obvious reference to Aristotle.

The animus has two parts, and each has its virtue. A right disposition of the intellectual part enables it to attain truth when affected by the objects that appeal to the senses: similarly a right disposition of the non-intellectual part enables it to attain truth in action, or goodness when affected by anything that appeals to the passions. It is possible to regard

this second part abstractly and divorce it from the intellect. We then have such habits and possibilities of right action as are shared by the brutes, but not completely moral action. To constitute virtue a right habit must be so based on a right mental state as to be constant and intentional. This doctrine therefore recognises that goodness is possible where there is only a low degree of intellect or none at all. At the same time the degree of morality must be judged relatively to the degree of intellectual power possessed by the agent. As Gassendi does not discuss the question of merit it is not easy to determine the significance of this point. The statement that virtue requires knowledge may have either of two meanings: it may imply that the agent must be conscious of the end aimed at, that is consciously adopt a course as good for him: it may also imply that the agent must know how the end he adopts is related to other ends, and ultimately to the universe of ends. It is in the second sense that Gassendi seems to use the phrase, but only with the intention of dividing the ethical from natural virtues or the 'nativam in Appetitu aptitudinem ad virtutem.' Consciousness of the end adopted is naturally connected with the subject of merit, because it is not infrequently assumed that goodness is proportionate to the difficulty of choice, or briefly, the greater the struggle the better the man. We are therefore left in twofold darkness when neither merit nor the need of conscious choice is fully treated. Some further light may be got from the following discussion of the mean. The Stoics considered the mean was a pollution of virtue, a compromise between extremes

of vice, and in itself nothing. Gassendi replying in support of the doctrine, emphasises the distinction between qualitative and quantitative means. In Ethics we have to deal with qualitative distinctions, and our mean is in se quid, not a vanishing point between extremes but an extreme itself. This decision enables our author to deal very sensibly with another question. As the extreme states are due to excess of passion, ethical theory had tended to associate with the mean state the absence of all passion. The Stoics, considering that the passions were in the rational part of the soul, saw no way short of complete eradication. Epicurus, on the other hand, declared the principal part of the soul to be free from passion. This puts the passions in the position of matter, upon which the moral agent may work and makes possible their permanent retention. The wise man of the Stoics was to be devoid of passion: the ideal of Epicurus found room for pity and anger, tears and sighs. There is however nothing which could lead us to suppose that Gassendi or his teachers attained to the idea of passions as natural forces which could be employed for good: they are by nature bad, without reference to the objects concerned: consequently the only choice is between extermination and limitation. The former leaves us with a purely intellectual state, and if this is not satisfactory we must take the second, admitting that an immoral affection is moral if sufficiently limited. But this is exactly what Gassendi repudiates as a Stoic heresy when put in the form 'virtue is a mean between vices,' or a mean vice. He points out that a curve) passing into (is not a curve at all at the

mean point [ ) | ( ]; and so with our vices, of which however he gives no example. The fallacy of the position seems to lie in the failure to distinguish the passion from its object, and so, for example, make room for righteous indignation beside bad temper, or the sorrow of the afflicted beside the self-abandonment of suicide.

One satisfaction remains: our ethic will at least deal with human nature and leave us our natural material. More than that, it will assert the unity of virtues, on the very sound principle that if we deny the unity we make virtuous acts and not virtuous natures the ground of our judgment. What has been said already on the necessity of virtue being a habit helps us out here. We are not good for the sake of being good: the pure love of virtue is nonsense: we are good to be happy. As all virtue tends to happiness the virtues satisfy the scholastic condition and are one both in origin and end, arising from Prudence and ending in happiness. The sceptic sneers at the suggestion that virtue always makes for happiness, and it can hardly be reckoned among the propositions proved by Gassendi. There is none the less much truth in the corollary that the good man finds happiness in virtue: if he does not, the virtue must somehow be foreign to his nature: fear of the law must be coercing him or even a guilty fear of God; and this is not that state of tranquillity which is the crown of the man whose good actions flow from the right disposition of his soul and body.

The special virtues are divided into four classes—Prudence, Temperance, Fortitude, and Justice. In

addition to these main heads there are other subdivisions which are differently enumerated by different writers. Aristotle himself speaks of several virtues not named in this first general division. The scholastics desired to elaborate such general heads as would include all the nameable virtues, and finally produced the following scheme. First, there are the three parts called Subjectae, seu species: 'deinde Integrantes, seu quas instar partium totum integrum componentium, necesse est concurrere ad actum perfectum cuiuspiam virtutis: denique Potentialeis seu quae potentiarum ipsius animae instar sunt virtutes quasi adjunctae.' These divisions may be exemplified by quoting the actual subdivisions of our main classes. 'Sic parteis Prudentiae Subjectas distinguunt Privatam Oeconomicam Politicam Militarem Regiam: integranteis Memoriam Intellegentiam Docilitatem Solertiam Rationem Providentiam Circumspectionem Cautionem: Potentialeis . . . Eubuliam, Synesin, Gnomen.'

The other virtues can be similarly divided, and the result is a list which the scholastics at least thought exhaustive of all the known virtues.

The first and greatest of the virtues is Prudence. This, as we have seen, is of five kinds—privata, oeconomica, politica, regia, and militaria. Gassendi deals with it under these heads. He begins with this virtue because it is, as Epicurus said, 'caput ac fontem, sic quasi Reginam atque Principem caeterarum virtutum.' We deal here with Prudence 'quatenus est moralis virtus, quae omnes vitae actiones recte moderatur,' and enables us to rightly distinguish good and evil: it has been well defined by Cicero

as 'rerum expetendarum scientiam': it is a habit of mind 'non certus (not, that is to say, concerned with necessary and immutable truths) sed conjecturalis': it is finally 'ars vitae,' and the essential quality of the practical man who does not concern himself with the end, but accepting the end without question devotes his energies to the elaboration of means. The three great functions of Prudence are bene consultare, intelligere, and finally imperare. The mental qualities required are sollertia, sagacitas, and all that makes for clear and prompt judgments on affairs.

We need hardly follow Gassendi through all the ramifications of the subject: in justice to him be it said that he seems to have omitted nothing that the good moralist and the conscientious preacher ought to say. He conducts through all the aspects of life, including the choice of a profession, the choice of a wife, the duties of man as father, landowner, master of servants, and, in the wider sphere of the State, controller of war and peace. It has been said that in these pages Gassendi shows himself as judicious in his Ethics as he is profound in his metaphysics; and this we need not deny, though the subject is less abstruse, in fact somewhat commonplace, and the treatment even more laborious, with very little that cannot be culled or deduced from Aristotle.

An interesting discussion arises on the meaning to be attributed to the phrase, 'follow nature.' Epicurus had advocated this course. Gassendi takes it to mean 'study your aptitudes': choose the course of life that is most suited to your tastes. Whether

the doctrine of motion is the implicit ground for this doctrine or not I cannot say, as Gassendi gives us no hint; but it would be very natural for a philosopher imbued with ideas of force and motion to adopt the idea of 'the line of least resistance.' That this is the actual point of view cannot be doubted. Every man has particular aptitudes: what then is more natural or better than that he should choose that mode of life which is calculated to employ and improve those aptitudes rather than limit or destroy them? If we attempt tasks for which nature has not designed us we make life an uphill struggle, and labour perpetually 'Sisyphi instar nixandi.' This seems a sensible point of view, but Lactantius did not agree with it, and made it a subject for censure. Epicurus, he said, aimed at popularity, and made base concessions to the frailty of human nature. As he states the opposite argument very fully the passage may be quoted at length: 'Propterea ut ad se multitudinem contrahat (Epicurus), apposita singulis quibusque moribus loquitur. Desidiosum vetat litteras discere: avarum populari largitione liberat: ignavum prohibet accedere ad rempublicam, pigrum exerceri, timidum militare. Irreligiosus audit deos nihil curare, inhumanus et suis commodis serviens jubetur nihil cuiquam tribuere: omnia enim sui causa facere sapientem.' In these and other respects Lactantius thinks that vice is encouraged: if you hate your wife it follows you should leave her: if children dislike their parents it is right to rebel against them: in short, life should be made easy, and private inclinations indulged at any cost. Gassendi's answer to this is that it is an

extreme and unfair interpretation. It was probably very typical of the treatment which Epicurean philosophy received at the hands of extreme churchmen. To take one point in illustration. According to Lactantius, Epicurus says if a man is lazy he need not take exercise: according to Gassendi the doctrine is, if nature has not intended you to be an athlete do not try to become one. In other words, while every one may know something about everything, we must each of us choose some one thing in which we aim to excel, and the economy of the universe demands that the occupation chosen should be in harmony with our nature. In this argument Gassendi was on the winning side.

The second virtue is Courage, sometimes rather unnecessarily labelled Fortitude, which is 'quandam animi fortitudinem,' a fixed mental state rather than brute force (in ipso robore et viribus corporis). It differs from Temeritas and Feritas (illa vocata Aristoteli) in being a fixed disposition of mind, and requiring for its highest realisation a clear knowledge of the danger which is faced. In reality the virtue is not primarily concerned with dangers in the ordinary sense of the term: its permanent function is the maintenance of a conviction once it has been accepted, and the persistence which endures and overcomes all difficulties in attaining an ideal. It combines therefore in itself Constantia et Perseverantia, and its end may be expressed generally as the maintenance of Justice: it is the spirit which neither does nor suffers wrong. As a fixed habit it enables us to endure all evils: these may be public or private: the greatest is exile, but

there are many others, such as infamy, imprisonment, and the loss of friends or wealth.[1]

Temperance, the third virtue, is to be taken in the Greek sense. It includes as partes subjectae abstinentia et sobrietas (illam respectu cibi, hanc respectu potus, says Gassendi, without telling us why abstinence as such should differ for food and for drink!): as castitas et pudicitia: as integrantes, verecundia et honestas: as Potentialeis, clementia, humilitas, modestia itemque mansuetudo, misericordia, moderatio, decus, studiositas, eutrapelia seu festivitas, urbanitas. This list certainly does not seem to fail in respect of comprehensiveness.

Justice, the third virtue, is not subjected to analysis under these standard heads. After remarks based on Aristotle's discussion of this subject, we come to the question of the origin of laws. Epicurus had found the origin of laws in utility (Epicurus omnem juris et aequi originem ab utilitate repetiit), and had consequently been attacked by the supporters of the opposite theory that laws are of natural origin. Gassendi thinks the two theories should be combined if we are to attain the truth. Man may be regarded either absolutely as 'solitarius' or in his relations as 'sociabilis.' Man as 'solitarius' finds himself in a world filled with the gifts of nature, and his instincts lead him to appropriate them. In addition to these instincts he has the faculty of self-preservation, with the implied right to retain all that is necessary for this preservation: here then is the root of the 'jus naturale' (facultas ista est in qua videtur dici posse consistere jus naturae

[1] II. 770.

primarium). But the things so appropriated were originally given by nature, and therefore the question arises why should one man have them more than another and 'inde enascantur rixae, rapinae, odia, vulnera, caedes'? These somewhat violent relations bring us to the second stage: quamobrem spectandus iam homo posteriore modo, sive quatenus sociabilis est, ac in naturae quasi modificatae statu: man recognises the need of mutual help, and a condition of harmony is brought about by the aid of laws. Thus nature and utility as principles are reconciled: Gassendi further recognises that the view of man as solitarius is not only abstract, but also a pseudo-historical process of accounting for the evolution of laws which has little probability: so far as we can say, society is as old as man, and that too not in the sense in which we speak of brutes as sociable, but in the full sense of a community of intelligent human beings.[1]

The root then of all law is the natural impulse which drives men to form societies: for as soon as we get beyond the individual as 'solitarius,' we find that life is impossible without mutual agreement or 'pactiones.' These first charters are between man and man, not contracts by which they surrender their liberty to one ruler, but formal definitions of mutual relations. Gassendi is not concerned to construct a

[1] II. 795. 'Itaque quicquid sit de illa seu suppositione seu fictione status, in quo seu Epicurus seu alii vixisse aliquando dicunt primos homines, tam esse profecto videtur ipsa societas hominum, quam illorum est origo antiqua: ac non eo quidem solum modo quo bruta generis eiusdem sociabilia inter se sunt, verum illo etiam, quo quatenus sunt et intelligentes et ratione praediti, agnoscunt non posse ullam inter se societatem esse securam nisi ea conventionibus pactisque mutuis constabiliatur.'

theory in support of the rights of kings, so that his 'pactiones' must be taken to be agreements between all the individuals in any one society without as yet any question of a ruler. The law is in fact the true ruler, so that there is no need to deal with the existence of personal rulers except in so far as their authority has a natural origin in the necessity of delegating the task of making the laws of a community to those who are its wisest and best. The head of the society then is he who has been chosen to make, explain, and administer the laws: his claim to the position is contained entirely in his personal character and ability: he rules as the embodiment of law, not arbitrarily, but acting as the mouthpiece of laws which are higher and greater than he, rooted in the earth and reaching to the heavens, the object which all men worship, and in the cult of which he is ordained high priest.

The jus to which we have been hitherto referring is that known as jus civile, the recognition of the rights possessed by the member of a civitas or society as such. This we have seen was based on utility, but always on a utility which is itself natural: in other words, it supplies wants which are rooted in the nature of man. There are however other kinds of jus, such as the jus gentium and jus naturale. As a rule, the jus gentium was regarded as e natura, even by those who thought the jus civile owed its origin to utilitas. Gassendi declares that the difference between the two is purely a question of numbers (discrimen ad magis et minus): in nature the two are identical, and both are grounded in utility.

Now that we have expanded our view to include all the kinds of Jus, we must discuss their relative characters. The least comprehensive term is jus civile, which has already been interpreted to mean the rights constituted by citizenship. The term jus gentium raises us to the higher level and a wider outlook. It denotes the rights which men have without reference to the particular society or state to which they belong, the rights which they have simply as men. Gassendi here becomes conscious of a difficulty. The original significance of the phrase jus gentium has been lost, now that humanity can no longer be divided into Roman and non-Roman. Consequently, jus gentium approaches very closely to jus naturale, inasmuch as it indicates rights which men may have apart from any definite citizenship or special code. To avoid the confusion which threatens us, we must go further into the question of the scope of the jus naturale and the limits of jus gentium.[1]

Jus is a term which covers both the facultas and the lex, says Gassendi: we may therefore look at it from either point of view. Man possesses a jus naturale in so far as he is an animal and has faculties such as the faculty of feeling.[1] But the term naturale implies a jus grounded in a natura and nothing more: since then the plants have a nature and faculties (such as the facultas sugendi), they must

[1] Voigt (*Jus. Nat.* vol. ii. 661) distinguishes Jus civile, Jus gentium, and Jus naturale as the systems which applied respectively to the citizen, the freeman, and the man. In the earlier stages of its recognition it was an independent international private law which, as such, regulated intercourse between peregrins, or between peregrins and citizens, on the basis of their common libertas.

have a jus naturale. To exactly define what is usually included under jus naturale, we really require a term 'jus animale'—or better still, 'jus humanum.'

I find it difficult to determine the exact meaning which Gassendi attaches to the phrase, 'jus is either facultas or lex.' It seems most probable that he thought of rights as primarily powers, the possession of which constituted the individual's 'right' to the advantages derived from their free exercise. These rights become more extensive as we rise in the scale of being: the plant has the least, the savage man has more, the civilised man most. We therefore rise from jus naturale to jus civile: at the same time the lower species are most comprehensive, and therefore the jus naturale appears more fundamental in proportion as it is more universal. This however is only in appearance: the jus naturale, though applied over a wider area, is in itself more limited than the jus civile: it is man as bare man that comes under its categories: as citizen man enjoys laws which, if they are more limiting, are also refined to far greater exactness. The facultas which constitutes jus must be taken to be a natural or social endowment which fits a being for certain acts, and as it implies that nature intended him to fulfil those functions for which he is thus equipped, it also confers upon him a right to the free use of those powers in the interests of the universe at large. The plant has the power of absorbing water, and so has a right to a supply of water: the animal has a power of feeling and motion entitling him to humane treatment and freedom.

Man as man has the distinctively human faculties, and with them the privileges of the jus humanum, while the citizen has the quality of civitas, which is his claim to the highest privileges of life. Thus we see that rights are grounded in natures, and the nature of the subject determines the character and limits of the rights. The nature of a being is therefore best realised under laws that establish these rights. At first the law seems a limitation of the nature, but a little reflection shows a different side to the question: if my desire to harm you is restrained, your freedom is enlarged: if I am not allowed to take away your wife, at least I may expect to possess my own in safety. So while the established law hedges me round about, it also provides a barrier against hostile irruptions.

We now see that the jus gentium can be defined by reference to its content. If we look for specifically human activities we find them in the faculties of speech, writing, reasoning, forming societies, and the like. These as common to all men, but not shared by man with the brutes, must constitute the sphere of the jus gentium.

The term lex, as opposed to jus, implies a definite contract and an executive power to enforce obedience. There is therefore no lex gentium nor lex naturale in the proper sense. There may be such universal laws as the lex spontanea[1] or law of

[1] Ulpian speaks of a jus naturale common to man and lower animals, which is substantially instinct. This is said to be a law of nature not referred to by any other jurist. The idea of jus naturale was not peculiar to Ulpian. Gaius and Justinian equate Jus naturale and jus gentium; but while the jus gentium is more natural than the civile, it is far from identical with the naturale. The jus naturale is

instinctive action: there may also be a law of rational action; but this is law in a different sense, the hypothetical precept which dictates the means for fulfilling some particular purpose. Though these are not laws in the full sense of the term, they stand very close to law in the highest and noblest use of the word. Man has reason: he can therefore see and understand the laws of his nature in a way that animals cannot: he can identify himself with this law so that the law of nature becomes *his* law, the law of his reason, and finally one with his reason.

Now, taking lex naturalis as the law of human nature and analysing it, we get the elements of law in its ethical aspect, the elements that is to say of the laws which are embedded in human nature. In order to ensure our attaining the original simple laws we must aim at two qualities, universality and freedom from prejudice; in other words, we must collect our evidence from a sufficiently wide area and at the same time not allow any preconceived ideas to bias our choice: we then get the following rules of conduct:

1. The first law instructs us to aim always at the good, which is to be interpreted as our own

essentially a speculative element. Its most noticeable features are: '(1) its potential universal applicability to all men; (2) among all peoples; (3) at all times; and (4) its correspondence with the innate conviction of right.' It included among its propositions (1) recognitions of claims of blood; (2) duty and faithfulness to engagements; (3) apportionment according to equity; (4) voluntatis ratio. (For these facts see Voigt, quoted in the *Encycl. Brit.*, *loc. cit.*) It will be obvious from these notes on the character of the jus naturale that it was eminently fitted for becoming the basis of a universal ethic.

good or advantage (primo itaque communissimum, innatumque adeo est omnibus hominibus, ut quod bonum, quod commodum, quod gratum fuerit, prosequantur: quod vero malum, incommodum, ingratumque refugiant). The collateral use of the terms denoting goodness and pleasantness should be noticed: we shall have occasion to refer to them later. It follows from this law that we are to love our benefactors and hate our enemies: from this is derived love of our children, our friends, and God, as the greatest of benefactors. Gassendi apparently assumes that all men will regard God as a benefactor: the necessity of worshipping him rests really on the attitude adopted by the individual, but Gassendi does not face the problem of those who prefer to 'curse God and die.'

2. The second law is simple, 'ut quisque se amet, plusquam ceteros, seu ut sibi bene quam alteri malit.' Some writers whom Gassendi contemptuously calls 'popular' have denied this law, but it is regarded by our author as indisputably natural and original. Thus Egoism is the point from which we must start: we love ourselves best and with ourselves all that is peculiarly ours: we benefit our own families before those of others, and, as the proverb rightly says, begin our charity at home! From this egoism, if so simple and sensible a doctrine can be called by that highly technical term, a mild and inoffensive altruism is naturally derived: in brief, Gassendi says that if you have time and opportunity there is no harm in doing good to another, provided it entails no loss to yourself. For example, it is only nice and kind to put the lost traveller on the right road,

if otherwise convenient; and from this comes profit, for the deed has its reward in that most inestimable sense of self-satisfaction (conscientia benefacti inestimabilis).

3. The third law is love of life, from which comes the impulse to marry, beget children, and rear them with all the advantages, such as education, which one desires for oneself.

4. The fourth law is the love of society which has its root and beginning in the union of the sexes. It is not unnatural for a man to love the common good, for he considers that his own is bound up in it. The concluding remarks are of particular interest, and to ensure their correct understanding I shall quote the essential passages. As Gassendi does not divorce the state and the individual, he does not raise the question as to how an individual, intent on his own good, ever gets to the point of considering the good of others. From the first the concrete individual is sociable, and therefore thinks of the public good as only another aspect of his own, as that in which his own is contained (quo intelligit contineri suum). The end of society is not realised unless the individuals enter into it in this whole-hearted way and take it up into their very natures. They must realise the reciprocity which society implies and which has been expressed in the fundamental law 'quod tibi fieri non vis, alteri ne feceris.' (I do not know if Gassendi preferred the negative form for any particular reason.)[1] In addition to this the

[1] Merito vero quasi prima secundum naturam habetur lex illa, quod tibi fieri non vult, alteri ne feceris: quippe ea omneis leges societatis sic continet ut nemo violet alienum jus, nisi quia legem

citizen must not only abide by the law but also be a law-abiding creature, he must not only *do* good but also *be* good, as Leslie Stephen has put it. The ideal condition is reached when no laws are required but all are just by nature.

On these concluding remarks made by Gassendi, Thomas[1] comments thus: 'Gassendi va même plus loin et ici sa doctrine s'écarte de plus en plus de celle d'Epicure: Ajoutons-nous, dit-il, que les saints Écritures ont excellemment dit que ce n'est pas au juste que la loi est imposée: parce que celui qui est veritablement juste ne l'observe pas par la crainte des peines que les lois ordonnent, mais pour l'amour même de la justice et pour la vénération qu'il a pour elle, de façon que quand il n'y aurait ni lois, ni magistrats, il l'observerait toujours de même.' 'On s'explique mal en lisant ces textes les accusations sévères qu'on a si souvent portées contre la morale de Gassendi.' He adds in a note, 'Cette règle de Gassendi ne nous fait-elle pas songer à celle de Kant et aux commentaires qui l'accompagnent? "Agis toujours," nous dit Kant, "de telle sort que la maxim de ton action puisse être érigée en loi universelle."'

hanc violat. . . . Manifestum quoque est finem societatis esse in eo, ut cuique suo jure frui, absque impedimento liceat: . . . debet in illis constans et perpetua voluntas tribuendi (hoc est conservandi atque reponendi) suum cuique jus, reperiri: ideo residere in ipsis Publicam, communemve justitiam quasi tutricem ac vindicem juris cuiusque singularis. If this is fully realised it follows supervacaneam publicam illam fore. . . . Finally, vir vere justus non ob intentas a legibus poenas, quas exacturus magistratus sit, sed ipsiusmet Justitiae amore reverentiaque colit, et legibus etiam magistratibusque sublatis prorsus culturus est.

[1] *Op. cit.* 277.

On these comments I wish to make a few remarks in order to further elucidate the view I take of Gassendi's position and show why, I cannot agree with the suggestion that this is Kantian. Nothing is easier than to lay hold of the suggestive phrases so often found in Gassendi and make them appear to anticipate some later doctrines. I do not mean to suggest that this is a vice to which Thomas is addicted: on the contrary, he often appears to me to have stinted rather than amplified his author's meaning; but this is exactly the sort of point in which two readers of the same book arrive at different conclusions through holding different opinions on the way the subject should be studied: it is thus an excellent opportunity of showing how and why I venture to differ from my predecessor in the task of expounding Gassendi.

The scope of Gassendi's ethic is defined by the phrase an ethic of prudence: however far Gassendi travels from that simple statement he never pretends to rise above the sphere thus indicated. The very laws given in detail show how Gassendi's good man is far more concerned with a concrete immediate welfare than is Kant's.

I have not avoided speaking of hypothetical and categorical phases of the law; but the transition from one to the other can be expressed thus: the hypothetical law of reason says, 'if you will to attain this, you must act thus': the categorical says, 'if you are what you are, you must act thus'; but the former half of the sentence is meaningless and can be omitted, leaving the simple law, 'act thus.' But the being-what-you-are means

being a social creature and implies no transcendental Self, nor even that semi-transcendental 'dignity of man' by which Mill so nearly arrived at Kant's position. On the contrary, it is pure common-sense, as though one should say 'being man and not angel, you must walk to get there': for the 'must' refers to the means and not the end which is given to all, namely Pleasure.

Again, Gassendi's law is formed by abstracting all special conditions: it is in that sense a universal law belonging to universal man; but it is empirical and objective, a solution of the problem of co-existence, not transcendental or subjective, or one that must be obeyed 'though the heavens fall.' It is true Gassendi says, 'put yourself in his place' and 'do not do unto others what you will not have done to yourself,' but that much is in the Bible, and one sentence does not make a theory. Hobbes had got as far as this without feeling the necessity of going any further; and as this element in ethics has a very patent origin I prefer to judge it from the point of view of its antecedents rather than speculate on its relations to later theories. The point to which I would draw special attention is the nature of the universality implied in Gassendi's words. Kant tells us the supreme principle of jurisprudence is, 'act so that the free use of thy elective will may not interfere with the freedom of any man so far as it agrees with universal law,' and this is surely what Thomas should have quoted if anything was to be quoted out of Kant. This I consider is exactly Gassendi's meaning, and therefore, so far from attaining the point of view which

Kant would call ethical, he stops at that which Kant expressly distinguishes as legal and external.

This question of the distinction of legal and ethical principles is all the more interesting in view of what I consider the real root of Gassendi's opinions. If we say that according to Gassendi ethics is a matter of relations between individuals and therefore always external, the question is at once asked, 'What of the clause about the pure love of justice?' In my opinion this must be explained by reference to what the will to be good meant to the lawyer[1]? The influence of philosophy, especially the Stoic, on Roman law, was to make the emphasis fall on voluntas. 'The desire to subordinate form to substance, the word spoken to the will it was meant to manifest, the abstract rule to the individual case to which it was prepared to apply it' was, we are told, strong in Cicero's time.[2] Seeing that the pages of Gassendi are full to overflowing with quotations from Cicero, and the terms used not only follow a distinctly legal argument, but are themselves legal, we seem justified in thinking that this juridical development is the source of Gassendi's inspiration, and he means no more than that it is better to understand and acquiesce in the natural laws of society than be one of the victims of the good men, *i.e.* those who have learned the secret of successful living. Gassendi may well say 'be good' as well as 'do good,' since that course will bring most pleasure: the idea of virtue for its own sake he has already

[1] *v. Encycl. Britt.* vol. 20, p. 696 (tenth ed.).

[2] 'neque enim est cur putemus solam justitiam esse constantem atque perpetuam voluntatem, ut *Jurisconsulti* definiunt' (VI. 113).

dismissed. It would also be well if that phrase were discarded by some other writers: it has the appearance of making its advocate look more like a saint than his fellow-men: in reality it means nothing, being a stupid abstraction, as though virtue could be cut off from life, and the good, the beautiful, and the comfortable were not ideas that reacted on each other.

But if we do not consider that Gassendi has reached the heights of Kant, if he has most certainly retained much that is 'pathological' in his ultimate, he certainly has, in the words of Lecky, 'abundantly proved the possibility of uniting Epicureanism with a high code of morals.' The tone throughout is that of the Prudens, the man of even balance and shrewd foresight, not given to useless asceticism or wasting extravagances, but withal full-blooded in his righteousness, and rejoicing in a godliness that is profitable unto all things. If there is nothing of the self-sacrificing strenuousness that makes Kant's ethics so exacting and tense, there is a lofty humanism which strikes the golden mean between the brute that does not aspire and the god that does not struggle.

CHAPTER III

ON LIBERTY, FATE, AND DIVINATION

THE discussion on Liberty, Fate, and Divination forms a metaphysic of Ethic in so far as Gassendi recognises the necessity of supplying an argument for the possibility of morality. Ethically, freedom must be taken to mean responsibility on which depend praise and blame. The common phrase refers freedom to the will; but the will follows the judgment, and it is therefore more accurate to refer freedom to the reason. The real crisis of choice as a psychological act comes when we have the alternatives before us, and then it is upon the attention that the strain falls: we feel that strain and recognise that the effort thus made seals the action as ours.

We must admit then a ratio libera in the sense of a power to choose under given circumstances one out of the many possibilities. The further question as to whether we should have preferred other circumstances and other alternatives is postponed. The essence of liberty is indifference: some have said complete determination is the highest freedom; but this Gassendi calls spontaneity or actio e natura, such as is exemplified in cases of gravitation. There

is however a correct use of the term referring not to natura ipsa but natura informata, the 'second nature.' If the will for the good is such that evil is not possible we may say voluntas sponte agit. As freedom has been assigned to ratio rather than voluntas the use of voluntas here should be noticed. The spontaneity of will is a formed habit which has reference only to some limited sphere: it leaves the reason unfettered, and the whole man is not completely determined. If we extend spontaneity so as to make all action so completely determined that only one course is possible, we get the concept of the Beatus Homo, who, like Aristotle's perfect man, is not on the moral scale at all. Freedom to be intelligible at all must be confined to the region of those that struggle and can err.

Gassendi uses 'indifference' in two senses. When we used it above, it meant freedom from prior determination or from a bias. We may take the example of the balance: the scales must be equal in weight themselves if they are to act truly: they must be 'indifferent' before receiving any weights. They may become 'indifferent' again, namely when equally weighted. So the will may be indifferent when the reason has equal arguments on both sides. Here then the will is indifferent not *to* but *with* the arguments, and the indifference belongs properly to the reason. Apparently will is to be regarded as suffused by intellect, not intellect by will; and as we are told that Practical Reason and Appetite are as inseparable as body and shadow, we seem committed to an intellectualism which entirely overlooks the irrational elements in human conduct. Here as

everywhere we find the concept of the man who deliberately chooses evil has not yet made a place for itself: consequently an ethical theory never gets a broader view than that which an analysis of the typical good man can give. In accordance with this we get the feeble compromises common to all philosophy of this type: evil is chosen only sub specie boni: the will is moved by the veri species which may be germana or fucata. It is interesting to note that Gassendi seems to throw the blame for wrong judgments not on the mind but on the species. Human experience goes astray, but there is a lumen supernaturale, and knowledge of absolute good is absolute knowledge, which falls outside our sphere.

Having thus defined the nature and sphere of liberty and so dismissed some errors which were really due to illegitimate use of the term, we may revert to an ulterior question raised above. I may be free to choose whether I shall stay on the burning ship or be thrown overboard, but what if I say I did not choose the situation, and therefore my freedom is a mockery? That question raises the general problem as to whether all things are not determined from the beginning of creation, my circumstances and my choice among them: whether, in short, physical causation has not already swallowed up liberty. This universal causation is called Fate or Fortune, and these terms must now be discussed.

The question whether liberty is not precluded by causation takes two forms according as the causation is purely physical or regarded as divine: according, that is, as we make it a question of Fate or predestination. The former is the tenet of the atomic

school, as we have already seen, and Gassendi's reply is identical in spirit with that which we have already had from Lucretius: he relies on the immediate testimony of the moment of conscious choice:[1] whether this is a consciousness of freedom or only failure to detect determination we are not told, but probably Gassendi meant more by it than Lucretius did. We have seen already that Gassendi gives us a clear and accurate account of the act of choice so far as the psychology is concerned; and his idea of the difference between the freedom of the will and the freedom of the reason justifies us in saying that he realised the fact that our mental processes do not unwind themselves before the reason but are definitely presented to and sanctioned or inhibited by the reason. There is no trace of the 'declination' theory of Gassendi's predecessors, which seems to indicate that Gassendi abandons entirely the attempt to make freedom consist in irregularity of action, which is all that the bare assumption of declination could give us.[2] The close union between thought and movement which Gassendi assumes throughout saves him the trouble of connecting the freedom of the will with freedom of action: they are assumed to be the same; but the difficulty of resolves which never result in action would have been shelved by Gassendi by referring them to the reason and not the will.

The second aspect of the question is due to theological influences. The problem is simple, but it may be doubted whether it seemed so simple in those days as it does now to more rationalistic minds.

[1] *v.* p. 237.

[2] II. 840. 'illi naturae lumini quo nos liberos esse experimur.'

If, they said, God foresees action, how can it be free? In order to understand the problem we must connect it with the older form of the Peripatetics. For the Peripatetic had already asked whether the truth of the disjunctive judgment did not prove that freedom was impossible. If it is true that to-morrow it either rains or it does not, and the one excludes the other, it follows that the weather for to-morrow is fore-ordained, determined or necessary, and freedom is illusion. To this the answer was easy: thought does not determine existence and the necessity of the disjunctive judgment is not a determination of 'reality,' as then conceived.[1] But if we suppose the mind that judges to be the mind of the Almighty, the question begins to look serious. To say that God can consider two alternatives without the slightest idea which will be realised is pure trifling: when the Thought in question is creative, it seems as though the thought of the future must be the creation of the future, which therefore would only await development in time. To this Gassendi's answer is that as God foresees the choice so He also foresees the freedom, a rather subtle turn of dialectic which certainly seems calculated to throw the ordinary opponent. It is to be assumed that God foresees that there will be a necessity for choice, and also that choice will be in accordance with the man's

[1] 'Cumque Aristoteles propterea admitteret solum, ut verum, complexum eiusmodi duarum disjunctivarum enunciationum, aut erit cras bellum navale aut non erit: Epicurus quoque hoc solum complexum admisit, ut verum, aut vivet cras Hermarchus aut non vivet: pervidit enim, si alteram disjunctionum veram esse admitteret, fore ut necesse esset vivere cras Hermarchum, aut necesse non vivere: "nulla autem est," inquit *in natura* talis necessitas' (II. 837).

nature: God's omniscience therefore enables him to foresee what the result will be, but that result is left entirely dependent on the nature of the individual as a free agent. This sort of argument is none too profitable, and there seems no need to pursue it further. It might however be noticed that the argument seems to assume that there is a distinction between the thought of God as knowing and as creative, possibly due to the distinction in the case of man between reason and will; and also that it puts indirectly but all the more effectively the most complete bar to Pantheism that can be imagined in thus severing the will of man from the will of God.

CHAPTER IV

ON GOD

A WORD or two may here be added on the nature and attributes of God. We have already learnt that Gassendi is in direct opposition to Epicurus on this point. He treats the subject as primarily a question of causality, and discusses it as the first part of the subject of efficient causation. The primary efficient cause is God: this is considered to be proved from the character (as opposed to the nature) of the world. The order of the universe naturally suggests to the mind the being of some Power that can regulate and control the march of events. This action is not really distinct from that of creation, for it was at creation that God gave to matter certain determinations which it preserves.[1]

[1] I. 316. 'Sed demus fuisse talem materiam seu Atomorum temere volitantium infinitatem, annon difficultas est semper quomodo in tanta illa laxitate, et infinitate spatiorum tot Atomi convenerint ut illico potuerint se tam valide revincire, tam concinne disponere, absque revinciente et disponente causa? Nam quod animalia quidem adeo exquisite formentur, id habent ex seminibus ad certas formas comparatis: Atomi vero illa non se habuere ut semina: quatenus comparata magis ad gignendum Mundum, quam ad quidvis aliud non fuere.' This passage deserves particular attention, because it shows how Gassendi sees that the necessity for going below determinate to indeterminate matter is one with the necessity for postulating a Creator: the Atom being nothing *may* be everything, but it *need* not be anything: the necessity falls outside the Atom as such.

It is not enough, says Gassendi, to say that the atoms were created, we must also allow that they were created in certain kinds. In this point Gassendi is really enlarging the hint given by Lucretius, who had introduced the idea of atoms as 'semina rerum,' which implies that certain lines of development were prescribed. The common phrase that one atom unites with another because it is like it, really involves the same introduction of a pre-determination of the possible compositions of atoms. Before Gassendi this argument was used to disprove the necessity of a God. But here the purpose was really extraneous to the argument: it was the previous intention of getting rid of that watchful providence which seemed to Epicurus nothing but a source of fear, that dictated the conclusion. Gassendi, setting out with the opposite purpose, finds these arguments equally useful for the purpose of establishing the being of God, and there is much to be said for his view. He quotes from Lucretius a passage which shows that this opponent of the gods allows all the facts which he himself uses in the defence of the one God. We must remember also that as a believer in the Bible Gassendi would at least be glad to find room for the idea of special creation: in spite of the obvious connection between his views and a theory of development, the times were not yet ripe for any doctrine of the origin of species, and it was tacitly assumed that in some way or other the species found on the earth were fixed and immutable. Now, the idea of semina rerum supplies the required element: if we go right back to the atom as purely indeterminate

it should be possible to get any combinations at any time, and this was held to be opposed to the laws of regular production. If we stop at the semina rerum we have our actual elements given with a considerable amount of determination, and Gassendi seems to have been willing to go a step further and say that the atoms were not created at first in their isolation, but in complex masses which were divisible into atomic parts. He is at any rate quite clear that to begin with the atom is a purely abstract and hypothetical result, which could only be asserted to be in harmony with reality if it solved all our problems, which it does not. We are compelled to deduce from the nature of the universe that there is something beside the material cause, some Power which can supply the elements of law and order, which moreover will explain the creation of the atoms themselves. Thus nature brings us to God both as creator and as rector of the universe. The concession which is made to science is that this does not imply perpetual interference: once created with their guiding determinations the world of matter is left to work out its own laws.

The recognition of the reign of law, which was so strongly insisted on by Lucretius, is now turned against the materialist. The one thing that atoms in themselves could not produce would be laws; and as law is, from the subjective point of view, intelligibility, we may say that the atoms are not capable of evolving an intelligible world. But the intelligibility of the world is above all things that which science demonstrates in the observation of

laws, and it is thus a means by which the nature of the world as intelligible is unfolded before us. But while it explains what the intelligible is, in reference to its content, it does not explain how the intelligibility itself came to be there; and that is where we require to supplement our science with Faith and Reason.

Having thus established the a priori need for a God, we turn to the question of the ways by which we get our knowledge of God. The first is Faith[1] and the second Reason; but the difference between these is not very great: in both the reaction of our minds is the convincing point. As to faith, it is the belief which arises in our minds when we hear a description of God: we find that the idea has an inner response which compels us to believe. The effect is much the same in the case of reason: there is formed within us an 'anticipatio' as a sort of residual impression produced by experience. This is in a sense a priori. It is not derived from the senses, but exhibited on the occasion of the sense-

[1] The justification of faith is somewhat over-subtle: 'jam vero ista quae per sensus comprehenduntur occasiones sunt quae nos ad formandum de Deo Anticipationem inducunt. Cum sit autem duplex potissimum sensus, auditus scilicet et visus,' etc. (I. 292). To auditus pertains the anticipatio which arises from hearing about God, *i.e.* from authority, primarily the authority of the Bible. It should be noted that this knowledge of God is an intuition, like that which grasps axiomatic truths. In both cases belief is due to 'seeing' (intuiting) the necessity of the conjunction of ideas expressed in the words: it is therefore relative to the individual's development. This argument is two-edged: for we can either say 'idiots do not comprehend God,' or, 'those who do not comprehend God are idiots' [ut quantumcunque aliqui hominum *mutili* aut nascantur aut fiunt, hoc non obstat quin homines dicantur habere ab ipsa natura suorum membrorum integritatem ita quantumvis aliqui aut nascantur aut fiant *Athei*, etc., I. 290.]

impressions calling it forth. Technically we have to distinguish between an 'anticipatio' got directly by comprehension, and those which are got indirectly by comparison. The latter are formed on the basis of sense-impressions, but are rational, requiring an activity that goes beyond the senses, and constructs what is never given to the senses. It is by this latter faculty that we attain the idea of God, which is thus a concept. If we ask whether this is innate, the answer is that the faculty is innate, but its exercise is dependent on the occasion furnished by the senses.

As to the relation of God to man, we are told that Epicurus erred in denying a special providence watching over man. At the same time man is a free agent, his freedom being the gift of God that he may work out his own salvation.[1] Religion, as is natural, produces in Gassendi a cheerful optimism: the good man does indeed suffer evils, and the sinners seem to flourish unduly; but the good man himself acknowledges that his sufferings are profitable, and all things work together for good, which is at least a tribute to the goodness of the good man; but if he was less good perhaps his opinion might have been less in accord with our philosopher's creed.

With regard to this theology, some have said that it is no part of Gassendi's real philosophy. This I think is wrong. Apart from the question of

[1] I. 331. 'Ad alia ut accedam, tametsi nos Deus sinit res nostras agere: non minus idcirco illi curae sumus. Quippe qui naturâ sumus liberi, idcirco nos, quae maxima ipsius benignitas est, frui patitur libertate nostra, ac nos interea procul dubio versus meliora dirigit. Etenim vices parentis gerit,' etc.

religious training and fear of the Church, the principles of Gassendi's philosophy require that the idea of causality should carry us beyond the physical world of things. If it be necessary to go beyond at all there seems no particular objection to the acceptance of theism, for pantheism is out of the question. It is as a metaphysical requirement that Gassendi introduces God, not as an appendix to his philosophy, but right in the middle, at the heart of the subject, when he is dealing with causation. The idea is for his times considerably refined: it would probably have been hailed at a later time as deism, and unconsciously goes very near to that as it is, for the world manages its own affairs (VI. 155), and even man is only watched from afar with paternal interest and led on to his self-fulfilment indirectly; but in spirit there is certainly no suggestion of such a conclusion, and God is theoretically rector mundi in the fullest sense of the term. The question which usually proves so great a stumbling block, that of personality, is not raised by Gassendi. He seems to have found no difficulty in the idea of human personality, and consequently none in that of God; though he is careful to point out that anthropomorphism is not essential, he does not reconcile that with the converse assertion he frequently makes, that man is created in the likeness of God.

NOTE ON DECLINATION

Gassendi discusses this point of declination very fully. When I say (page 221) there is no trace of it I mean that Gassendi does not build his own theory on it in any way. As this 'declination' has been the subject of much dispute, it will be worth while comparing Gassendi's view of it with later opinions. The most important of these later opinions is that of Guyau in *La Morale d'Epicure* (2nd edition, Paris, 1881). The whole position taken up by Guyau is criticised by Masson (*The Atomic Theory of Lucretius*), and I shall first state that position and the criticisms made by Masson:

'M. Guyau's explanation of the subject is in several respects a novel one, and especially so in regard to one point, viz. his account of Epicurus' teaching as to Chance and the very important part which M. Guyau supposes it to play in the Epicurean philosophy. According to him Epicurus believed that the element of chance which we see at work in the world every day is the manifestation and outcome of a principle of "Spontaneity" existing in Nature. This "Spontaneity" is the consequence of the power of Declination possessed by the Atoms. Thus Epicurus believed both Free-will in man and the element of Chance in the world around him to

be the result of the same power of Atomic Declination in its twofold working. Epicurus, says M. Guyau, after having combated the religious idea of Providence or Divine caprice, found himself confronted with the scientific idea of necessity. Thus his main philosophic aim was to escape from the notion of gods interfering with nature on the one hand and to steer clear of the doctrine of fate on the other. It is well known that Epicurus solved the difficulty in a way satisfactory to himself, by assigning to the atoms the power of declination. But for this power the world could never have come into existence, for otherwise the atoms could never have come into contact and produced the earth or the life upon it. It is the same power of spontaneous movement in the atoms of the soul which alone originates and renders possible the Free-will of man. . . . It is commonly thought,' M. Guyau continues, 'that Contingency, placed by Epicurus at the origin of things, existed, according to him, at the origin alone, and then disappeared in order again to leave room for necessity. The world once made, the machine once constructed, why should it not go on by itself without any need of invoking any other force than Necessity?' (*Masson*, pp. 210-214).

Further quotation shows that M. Guyau thinks, in opposition to this common view, that Spontaneity is always and everywhere active. The objection that all production would then be of the nature of a miracle is rebutted by saying that the idea of miracles implies an agent outside the natural order; but here the agency is in the things whose sum is

nature: moreover the effect produced by this spontaneity would be very slight. (Masson rightly points out that this is wrong: 'the spontaneous movement of a mass of matter, however slight, might still be able to give the initial impulse required to let loose a mighty force.')

The result of M. Guyau's position is then that 'the Free-will which man possesses will exist everywhere in inferior degrees, but always ready to awake and act. . . . The atoms which form our bodies must possess a power of Free-will analogous to our own, more or less extensive, more or less conscious, but real.' The objections Masson makes to this, apart from sundry obvious misinterpretations of Lucretius,[1] are that it destroys the concept of Law in the universe which is so prominent a feature in both Epicurus and Lucretius, and assumes, what could not be proved from Epicurus, that masses of matter would have the same freedom that the atoms have.

The root of M. Guyau's view is his opinion that 'in Epicureanism there are no inconsistencies, but only a few false deductions.' This cannot be allowed if it means that Epicurus consciously recognised both the fundamental difference of mind from matter and the necessity for a final reunification. The great error which it appears to me that M. Guyau has committed is that he does not recognise the difference of the ancient and modern methods: he looks at the question himself from the standpoint of consciousness as most important, and so inverts the position

[1] *E.g.* nec ratione loci for regione loci in the passage quoted, p. 236.

of Epicurus. To this he was doubtless led by the famous passage[1] of Lucretius. If we now quote the remarks of Gassendi, we shall see how the matter presented itself to one who was less biassed by modern points of view, and probably far nearer the truth.

'Videtur itaque Epicurus ex eo saltem laudandus quod vel auctore ipso Plutarcho, nullum non movit lapidem ut libertatem arbitrii intemeratam tueretur: tametsi adversus Democritum non habuerit aliud paratius effugium quam declinationem illam atomorum, dictam Plutarcho . . . *rem adeo exilem, ac tam vilis pretii.* Ecquonam porro modo potuit hocce qualecunque commentum Libertati accomodare? Forte, quatenus cum attenderet esse in animalibus et in hominibus praesertim, triplex genus motus, nempe Naturalem Violentum et Voluntarium seu Liberum, existimavit primariam causam petendam esse ex atomis, a quibus omnis motus principium. Quare et velle potuit radicem motus naturalis esse ipsum motum Primarium atomis ingenitum, eum scilicet qui dicitur gravitatis et ponderis et quo Atomus dicitur ad lineam sive perpendiculum ferri. Violenti vero motum Reflexionis seu illum qui est ex occursione, seu plaga ictuque alterius. Denique Voluntarii ipsum motum declinationis cui nulla regio determinata, nullum tempus praefixum est. . . . Verumtamen videtur fuisse excepturus Democritus nullatenus posse Epicurum commentatione hac adjuvari. Quoniam, cum hic declinationis motus tam sit naturalis atomisve congeneus, quam qui ad perpendiculum est (quippe quem non extrinsecus, sed a

[1] Quoted below, p. 236.

seipsis habeant) ideo tam fient omnia Fato, tametsi ille concedatur, quam si admissus non fuerit: cum pari semper necessitate ea quae eveniunt sint eventura pro varietate motuum, ictuum, repulsuum, clinaminum, etc., aeterna quadam serie et quasi catena sese consequentium: ac speciatim quidem quod ad cognitionem appetitionemque attinet, ad quam referri libertas debet. Etenim ut mens, sive animus eam libertatem explicet, qua appetit, v.c. Pomum, debet primo imago seu species visibilis pomi ex ipso procedere, trajectaque per oculos percellere mentem, ut illud cognoscat. Pomum autem, ut speciem in oculum transmitteret, debuit tali loco reponi ab eo, qui ex arbore ipsum collegisset, collectumve aliunde habuisset. Arbor vero praeter Solis radios, humoremque et terram, unde adolesceret, etiam granum habuit, unde nasceretur. Id granum fuit ex pomo alio, hocque ex alia arbore, huic non alio loco nec alio tempore sata: atque ita retrogrediendo ad usque mundi initium, quo et terra et terrena semina ortum habuere ex concursionibus complexionibusque atomorum, quae ut iis locis iisque modis convenirent, debuerunt exinde non aliunde accedere: et ut accederent, debuerunt aut ex inani aut ex alio sive uno sive multiplici Mundo ita advenire ut per illud sive in illo ac isto non alio modo fuerint: atque ita porro per totam antecedentem aeternitatem. Deinde, si animus quoque coaluit ex atomis, debuere necessario tales atomi contineri in parentum seminibus, debuere eo confluere ex certis cibis, aere, sole. Debuere hi cibi, non alii assumi: debuere ipsorum caeterae causae ex his illisque non aliis esse atque ita rursus ab aeterno tempore quod idem pari modo eveniet, quamcunque

ex causis quasi lateralibus, et concomitantibus quae in immensum pene excrescunt, quovis modo assumpseris adeo ut cuicunque illarum ex tota serie te addixeris, deprehensus si retexendo, ipsam ea concatenatione teneri cum aliis ut ex tota serie ad tale usque momentum producta, necessum fuerit consequi huiusmodi appetitionem. Scilicet ex aeterno usque causae causis sic cohaeserunt ut postremae istae denique concurrerint, quibus positis mens non potuit non cognoscere et appetere pomum. Quodque de causis dicitur, idem semper est intelligendum de atomis, ex quibus conflantur et ex quarum motibus variis motiones derivant, propter quas sunt causae. Praetereo autem, quod Cicero videatur eodem respexisse. . . . Adhaec autem, ut aliquid ex ipsa Epicuri mente probabiliter respondeatur: assumendum est eam esse animorum contexturam ex atomis, ut quae in ea sunt declinantes, eam rigiditatem quae ex aliis est, flectant, naturamque flexibilem in omnem partem faciant: in quo sit radix libertatis. Quare et animum allectum cuiuspiam rei imagine, abripi quidem versus illam: sed non ita tamen quin, si aliunde imago alia occurrerit, allici ea rursus et abripi posset: adeo, ut a priore deflectens, constituatur quasi in bivio et ad utramque partem indifferens sit: quod sane est liberum esse. Quod animus autem, cum sit ita flexilis ac indifferens, sese ad unam potius partem quam ad aliam determinet, id oriri ex impressione unius imaginis vehementiore, quam alterius: sicque electionem sequi ad apprehensionem eius rei quam imago sive bonum sive meliorem exhibuerit. Denique animum, ubi quippiam elegit, aut voluit, esse quasi principem machinam, ex cuius motione, intercedenti-

busque spiritibus, qui per totum corpus discurrunt, facultates omnes, ac membra exsequendo destinata, excitentur eoque feratur quo tendit ipse animus. Facere huc possunt, quae canit Lucretius,

> 'Declinamus item motus, nec tempore certo,
> nec regione loci certa, sed ubi ipsa tulit mens.
> Nam dubio procul his rebus sua quoique voluntas
> principium dat: et heinc motus per membra vagantur.

'Quo loco declinare est flectere ac dirigere motus: illudque nec tempore certo, etc., notat cum ipsam animi indifferentiam seu libertatem, quatenus animus ex se non ad ista potius quam ad illa fertur: tum varietatem rerum occasionum, imaginum, quae neque semper, neque eaedem neque eodem modo in eum incidunt ipsumque alliciunt.'

This is by no means an easy passage to comprehend, but if the mind of the reader can be cleared of all presuppositions, he will see that the following points are established:

(1) Epicurus is opposed to Democritus.

(2) His answer to Democritus is based on the idea of Declination.

(3) His position would not be overthrown by any objection urged by the supporter of Democritus to the effect that Declination is an original force, and therefore only one more form of determination.

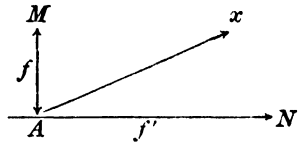
(4) His own doctrine proves that the mind is capable of *any* motion, and therefore up to the time it moves is wholly undetermined: it moves entirely in accordance with the laws of force, and is therefore free.

This last is the point at which it seems to me that our guides have led us astray. M. Guyau's spontaneity surely means that the Will can and does act in wholly indeterminate ways, *i.e.* in ways which have no relation at all to the other co-existent forces. Masson argues that this is a breach of law, and therefore would not have been tolerated throughout Nature (M. Guyau having thought it universal), but is none the less valid of the mind: the 'fatis avolsa potestas' of Lucretius seems to have made him think Lucretius exempted the Will from determination, though surely Lucretius must have seen that one lawless element makes the whole lawless. Masson's assumption seems to be that Law holds in Nature only: hence Guyau's spontaneity in nature must be a fiction. But the animus which we labour to make free is also in Nature; and therefore its spontaneity is a fiction. Although Masson speaks of 'the volition of the dead atoms,' I think he has not really succeeded in putting himself entirely on the material side and looking at things in the way Lucretius did. If we can once begin to discuss freedom without reference to consciousness as the agent, if, that is, we can comprehend a freedom revealed to consciousness but not dependent on consciousness, we shall be on the right road.

Lucretius exactly formulates the position in the phrase 'fatisque avolsa potestas.' The apparent meaning of that is 'a power plucked from the grip of Fate,' *i.e.* saved from the inexorable laws. But that is just what it does *not* mean: on the contrary, it means 'saved from the Fates in order to be subject to law.' The Fates denote here the power

which overrules physical laws, which is therefore, from the point of view of Physics, an incommensurable quantity. Plato gives us this idea of Fate in the *Republic*, Bk. x., for there we see that the will of the individual is destined at one fell stroke to follow out the chosen course of a whole lifetime. Now, express this in terms of Force. Two forces act on the body A: as a result it moves in direction x.

This is according to law: neither f nor f' produces the direction x by itself—but both together produce



a result which, given the factors involved, is always calculable. Now if A moved in the direction M or N, or any direction other than x, the reason for that movement could only be found in some determinant other than the given forces, *i.e.* in Fate. Fate, then, is the contrary of regular law-abiding action. Hence Gassendi says, 'Explodenda Democriti sententia est . . . illa Epicuri defendi quidem potest quatenus Fatum et Naturam naturaleisve causas res esse synonymas ducit.' It was then by making Fate the same as Nature that Epicurus defended freedom! This seems paradoxical, but the difference lies just in this, that Democritus said Nature is Fate, and in any case we are bound hand and foot: Epicurus said Fate is nothing unless it is law, and the law is my nature, not something 'extrinsecus,' overruling me. So long, says Epicurus, as natural forces

alone control action, I am free, for I am a real agent, and when I say, *I* do this, there is no illusion: I take my place among the forces of the world and am content.

But if this is the opinion of Epicurus, what more do we want? Why does not Gassendi accept it? The answer is, that after all for *us*, as we now look at it, with God and the hereafter to keep in mind, this theory is useless. In it the future counts for nothing: the forces all act a tergo: the what-I-am-now alone counts: the future being, that which is not, cannot have any place in a theory that aims to be purely physical. As soon as Providence is assumed and its implications examined, as they had been in the literature of Christian philosophy, we get the idea of end, and the possibility of the consciousness of ends. Then the doctrine of Epicurus must be relegated to the sphere of the animals, from which it had been taken: the sphere that is of those beings that move and think, but do not move because of the thought.

Such is Gassendi's view and my conception of its meaning. I add one or two remarks by way of elucidation for which Gassendi is not responsible. It might easily be said that Epicurus admitted the influence of *future* happiness as determining present choice, and therefore must have gone beyond the sphere of physical action. To this there are two answers: (1) The thought of the future is a present thought, and therefore belongs, as active factor, to the forces which are now and here. This I think Epicurus would not have used. (2) The real answer lies in the point that it is Freedom of the Will we

are discussing, not freedom of choice. Locke has put this point very well. 'This then is evident, that in all proposals of present action, a man is not at liberty to will or not to will, because he cannot forbear willing: liberty consisting in a power to act, or to forbear acting, and in that only. For a man that sits still is said yet to be at liberty, because he can walk if he wills it. But if a man sitting still has not a power to remove himself, he is not at liberty: so likewise a man falling down a precipice, though in motion, is not at liberty, because he cannot stop that motion if he would' (*Essay*, Bk. ii. ch. xxi. § 24). This latter clause exactly expresses the idea which Gassendi attributes to Epicurus. It is not a question of being free to choose, but of being able to do what one does choose. Freedom of choice belongs to Ratio: would any Greek talk of freedom of Reason? Certainly not an Epicurean: for him it is enough that the action begins from the man, the ἀρχὴ τῆς πράξεως, the voluntas principium dat of Lucretius.

At the close of Gassendi's exposition quoted above, we see that he says 'the more vehement image or impression determines action, *i.e.* we always follow the better course. The words vehementior and melior come so close together that it seems impossible to suppose that Gassendi was not conscious of the transition. On the contrary, I think it is an intentional juxtaposition expressing his opinion that for Epicurus and Lucretius the better must always be the stronger: in which he was probably right. For his own theory this is a difficulty, and perhaps explains why he transfers the

liberty from voluntas to Ratio, a procedure which is on the whole retrograde, and theological rather than philosophical. After the Pelagian controversy and the subtleties of posse non peccare and non posse peccare, the moral quality of volitions was a more important question than the efficiency of the will as a factor in a world of motions.

PART IV. GENERAL REVIEW

CHAPTER I

GASSENDI

I.

We have now passed in review all the main features of Gassendi's thought: what are we to say of it as a whole?

Here and there in the literature of philosophy one finds references to Gassendi. As a rule they are patently second hand, and often accompanied by the remark that Gassendi has been unduly neglected, without however any clear indications of what is to be expected from the study of his works.[1] We are now in a position to consider the value of Gassendi's writings and show the reasons why he was neglected and also why he deserves a better fate.

The first phase of modern philosophy as it is described by historians was marked by the revival of ancient systems and a tendency to revert to pre-Aristotelian doctrines, especially atomism. No one however attempted to reconstruct atomism as a system: the atomistic principles only affected certain phases of the teaching of contemporary philosophers: until at last Gassendi published his work. Unfortunately, it came too late to catch the general ear:

[1] *v.* p. xliv.

already the keynote of modern thought had been struck and a new point of view adopted by speculative thinkers.[1] The direct objectivity of Gassendi could no longer find a responsive audience when every mind was busily developing the new notions of a subjective philosophy. Gassendi was ranked among the ancients, true descendant of Democritus and Epicurus: the world wanted no more of the ancients: we, they said, are the ancients, and in the history of thought the last is ripest and best. Not only was Gassendi thus hampered by his relations and discounted by being a disciple of Epicurus, he was also regarded as materialistic, not in the sense in which we might use the term now, but in opposition to the idealism which was daily gaining ground. Descartes had at least succeeded in dividing mind from matter, and so far laid the foundation of the subjective movement in philosophy; and for those who cherished this position Gassendi's view of the universe could have no attractions. The all-absorbing question now was how to heal the wound that thought had inflicted on itself, how to bridge the gulf that these convulsions had made in the once solid world of Being. Given a dualism of this kind

[1] Thomas (*op. cit.* p. 24) gives two reasons for the neglect into which Gassendi fell. The first, quoted from Brucker, is that Gassendi was too modest: his manner was so hesitating that it failed to win the confidence of the reader. The other is want of clearness and conciseness in the exposition. I think the true reason is rather to be found in the fact that the necessity of getting down to nature was not yet fully recognised, and the ideas of system and subjectivity were more akin to the spirit of the times than those of content and empirical classification. Thomas is certainly right in saying that Gassendi was as much damaged by his friends as his foes: Epicurus in one way, and Bernier in another, combined to damage his prospects.

the central problem must be that of re-unification, and so, as a matter of history, it was, from Descartes down to Kant. On the very edge of this era stands Gassendi, as it were the last of the old school: after him comes the long period of restless searching, with its slow growth, through many abstractions to a new concreteness and fresh satisfaction in the discovery that after all *the* world is *my* world.

Across this sea of strife we look back to-day, and are surprised to see how near to us that last beacon seems: the longer way takes much time, and in the end we are further on, but not so far as we could wish, seeing how many toilsome years have elapsed. We have still with us the old problems, many of them not yet entirely obscured by the multiplicity of solutions: we have still the old antagonisms, and philosophers strive in vain to repudiate the titles with which the critics successfully label them. I am far enough from suggesting that man has not progressed in the sphere of thought just as undoubtedly as he has progressed in the sciences and in adaptation to his world; but as one reads the pages of Gassendi there grows the feeling that this was the 'synthetic philosophy' of its age: that Gassendi aimed to do what Herbert Spencer has aimed to do: that the difference of their material is a significant comment on what has been done; and their similarity an equally significant comment on what has not been achieved: while between Gassendi and his opponent lay just the kind of gulf that lies now between the Spencerian and the non-Spencerian.[1]

[1] See p. 305.

II.

In the list given by Ueberweg of those who revived ancient doctrines we find 'Epicureanism by Gassendi.' Further on we find a note on Gassendi which runs thus: 'Gassendi sought to defend Epicureanism against unjustified attacks, and to show that it contained the best doctrine of physics, and at the same time to combine it with Christian theology. Gassendi's atomism is less a doctrine of dead nature than is that of Epicurus. . . . From its relation to the investigation of nature in modern times, Gassendi's revival of Epicureanism is of far greater historical importance than the renewal of any other system: not unjustly does F. A. Lange consider Gassendi as the one who may properly be styled the renewer in modern times of systematic materialism.' These are cautious words, and obviously more of Lange than Gassendi: we may take them as our text, and see how far they are true.

The passage quoted gives us two descriptions of Gassendi: his philosophy is (1) Epicureanism modified and (2) systematic materialism. The former definition does not help us much unless we know more accurately how far the Epicureanism was modified, and in any case Epicureanism was never a term of very exact significance. We can leave this and take up the second title, materialist, a label generally affixed to the name of Gassendi and usually justified by a reference to Lange, who seems to have been more anxious to find a materialist in Gassendi than to find out whether Gassendi was a materialist.

To define this term materialist we shall have to

work backwards. It means in common use a philosophy which starts from the object as something distinct from and opposed to the subject. 'No object without subject' is, according to Schopenhauer, the principle which for ever makes materialism impossible: from which it seems to follow that object without subject is the peculiar theme of the materialist. Certainly the materialist does not start from 'notion' or ego, and so far forth he is the antithesis of the idealist. But materialism implies far more than this: it implies a view of the universe as altogether objective, as all object and no subject, as a self-organising, self-subsisting whole, known only as it is reflected in a consciousness which is a by-product of its activities. Whether we take materialist in the widest or the narrowest sense in which it can be used, one point is essential: mind must be a function of matter, and this alone justifies us in denying that Gassendi is properly a materialist. At the same time he is certainly not an idealist. But the necessity of dividing all philosophers into one or other of these classes is what we are prepared to dispute; and, finally, we may discover a more suitable title than materialist while clearing our minds on this point.

To begin with the historical aspect, Gassendi as related to the ancients might more suitably be called a physical than a materialist philosopher. After Kant, idealism takes as its motto, 'no object without subject.' Before that era of criticism there was idealism of another kind that retained many objects that were only partially, if at all, dependent on a subject. The Cartesian doctrine is rightly called

idealism in so far as it laid stress on the mind as the centre of our universe of knowledge; but that world of knowledge lay in an ocean of Being that stretched beyond its limits, unknown and as yet unnamed. This idealism, the idealism that tells us our world is known only through the mediation of ideas, and so keeps asunder that world and the cosmos of ideas, is far different from critical or transcendental idealism, and its opposite is not materialism in the modern sense at all. How could it be, seeing that the idealism in question kept its matter a solid 'adverse occupant of space' and carried the reality of this matter up to the very threshold of thought, even there trying to retain its being for thought as the thought itself, and convert its grossness into thought by refining it to its subtlest forms?

History has done justice to Descartes, but hardly to Gassendi. Even as contemporaries they were mainly regarded as rival physicists, the one for atoms and the other for vortices: yet one cannot help thinking that if Gassendi had possessed the clearness and directness of Descartes' or Hobbes' style he might have commanded as much recognition as either. If we take Descartes as the typical figure of this period, and call his doctrine material idealism,[1] we shall have a point which may enable us to determine the bearings of Gassendi. The feature of that idealism is that it makes extra-mental reality uncertain, or, to put it more vigorously, draws the line of real and unreal at the boundary of one's own skin. This Gassendi does *not* do, so that title does not include him.

[1] I take the phrase from Kant.

It appeared promising for a moment, since the ground of that distinction of inner and outer existents lies in the doctrine of representative ideas. This doctrine we have also in Gassendi in the form of symbolic brain movements, so that a similar result might have been expected: as it is not forthcoming we cannot say more, but go back and start again.

If we look once more we see another common point. In a sense Descartes and Gassendi both start from experience; both are in a way empirical. But Descartes begins with a prejudice for rationalism: the 'cogito ergo sum' may not have been the actual starting point of his system, but its final emergence has been declared in the verdict of history to guarantee rationalism as the tone of the system. As compared with this, Gassendi works with a pure experience.

Once more we digress to wrestle with our terminology. What is experience as a basis of philosophy? In the language of the philosophy of to-day it is to be taken as the most comprehensive of all terms, the name for reality as it lives and moves, not merely in us, or in thought, but in itself. From it, as derivatives, spring subject and object and all other antitheses, and the work of philosophy is the analysis of this experience. This brings us back to idealism as Schopenhauer defined it. This is the result of the Kantian standpoint and his analysis of the object. Before Kant the *object* was the same as the *thing*, a given and not a product; and thought based on experience was called empirical, now become an opprobrious epithet. Empiricism then is the science of experience in this cruder form. But as a rule

'empirical' as a philosophical label means subjective in the sense that Locke's psychological method is empirical. Philosophy rapidly took this psychological trend: it was the human understanding to which all attention was directed, and with that the question arose, 'how can I know what I know?' drawing the curiosity of man after it with irresistible attraction.

Compared with these later enquirers (Berkeley and Hume) the position of Locke, and still more of Descartes, appears crude and uncritical. Yet there is an element of strength and comprehensiveness about them that is reassuring. This is due to their fresh simplicity in believing that what is actual must be possible, that what our experience gives us must be accepted even if it cannot be explained. Experience is then taken in the broadest possible way, and its truth accepted. Descartes, for example, finds his theory divides mind from matter: yet in experience they are one, and so they are again united: the critic pounces on the 'inconsistency,' but Descartes does better in bending theory to fact, as he knew it, than in distorting fact to save the theory. Modern philosophy has too much of the element that damned scholasticism when it casts the theory first and fits in the facts after. The shibboleth of theory plays in modern thought the part that authority played in scholasticism. We lay down for ourselves laws of what we *must* have, and in the seclusion of the study we get it: outside the reality breaks loose, and we envy Hume, who found the problems that seemed to mock his efforts vanish when he stepped out into the sunshine.

Descartes stood for sincerity as well as he could. Gassendi too, barring graceful concessions to the dogmas he neglects, strikes us as sincere. For both, Experience was the last great fact, the first great synthesis that no theoretical analysis could destroy. For Gassendi experience is life, the life of thought and will and feeling, and the subject matter of philosophy. Hence his philosophy is grounded in experience; but it is an analysis of the experienced, not of experience itself: it is a mapping out, so far as may be an organisation, of the known, the felt and the willed: not a criticism of knowing or feeling or willing itself. As yet criticism is far off, looming in the horizon of the future: the darkness of the night is passing away, and in the day of freedom just beginning men rejoice in sorting out, arranging and setting in order the realities with which they feel themselves in living contact now that they no longer need to see the world through the veil of traditions.

Gassendi's basis is this experience, to him at least not known as crude, and we may call him empirical, hoping that the term is sufficiently explained. Empiricism includes empirical idealism and empirical realism. The former 'makes ideas into things,' and gets rid of the world in the sense that Berkeley did.[1] With this Gassendi has nothing to do: he must therefore be classed as an empirical realist. But neither is this quite satisfactory. It is true we have the atoms, but atomism has more forms than

[1] 'I shall not therefore be surprised if some men imagine that I run into the enthusiasm of Malebranche. . . . He asserts an absolute external world, which I deny' (the Second Dialogue between Hylas and Philonous).

one. It may be (1) pure physical atomism, such as we associate with the name of Democritus; or (2) pure idealistic atomism, such as Leibnitz attempted; or finally, (3) a mixed form combining the atomistic theory of the world with a non-materialistic view of the mind. This is the construction of things Gassendi gives us, and in this lies the great difficulty of properly understanding him. The difficulty can of course be overcome by saying that Gassendi was half-hearted or allowed his theory to be ruined by his orthodoxy. But is there any proof of this? None, I think, except that his construction does not work out as some have thought it ought to; does not present the unity we demand in modern works. But it is the prerogative of systems which start from consciousness to attain unity to a degree we never find in other systems; and the lack of unity is perhaps not so serious as appears at first, for if *matter* does not carry us to the end we may find that our *principles* do, and we at least remain faithful to our basis, experience.

The name atomism naturally allies itself with materialism. We are accustomed to atomic theories which belong to physical science, and therefore remain within the realm of matter. But if we reflect on atomism as a philosophical principle we see that it is essentially a method or principle, not a given matter, and therefore may be applied as a principle to any given. I do not say that it can rightly be applied; but only that it does not of itself necessitate matter being the only constituent principle. Just as evolution is a way of looking at things and does not tell us what that which

evolves must be in other respects, so atomism merely lays down the law that a complex total must be composed of indivisible parts: whether the parts are material or spiritual is of no concern to atomism as such. This is clear if we think of Locke's atomic psychology, of W. K. Clifford's atomism, or of Leibnitz; and we need not fear the accusation of reversing history, for Giordano Bruno had grasped before Gassendi the significance for idealism of an atomistic doctrine, and rightly seen that the speculative aspect of atomism is simply the question of real minima.[1] The principle upon which atomism works is that the ultimate is an individuum, and this is not in any way touched by having a spiritual as well as a material order: whether there are to be more orders than one is a question that must be decided on its own merits, and Gassendi's reason for having a soul that is not material is that he finds in his own life grounds for belief in an immaterial entity, in other words he takes it up from experience. For the present we are content to point out that there is this spiritual reality, and that it forms an integral part of the whole doctrine. We must therefore be careful to take our title 'empirical realism' strictly to mean

[1] On this point Gassendi in his correspondence diverged into humour with a translation of duo quaedam epigrammata ex Anthologia: I quote the second:

'Ex Atomis Epicurus ait consistere Mundum,
Alcime, quippe putans his nihil esse minus.
At si novisset Diophantum, constituisset
Ex ipso potius, qui minor est Atomis.
Aut alia ex Atomis texens, ipsas potuisset
Ex Diophanto Atomos composuisse prius.'

(VI. 160.)

that our ground is experience, and our world is real in the anti-idealistic sense that it is not made by mind.

III.

Having defined the scope of this philosophy a few remarks may be added on its main features: as our account of Gassendi is itself nothing but a summary, there is no need to add summary to summary, and nothing will be said here beyond what is necessary to indicate the view I take of the philosophy as a whole.

Gassendi's philosophy is an analysis of our universe, attained by examining experience, and presented synthetically, or we might say syntactically (in a syntagma). As synthetic the presentation has a definite principle upon which it is worked out. This principle is the idea of ascending degrees of complexity. The unit is the atom: things are complexes of atoms: and each degree of complexity has its own peculiar attributes. We thus get a scale of Being as follows:

(*a*) The atomic scale.

(1) Primary complexes of atoms (kinds of earth).
(2) Secondary complexes of atoms (metals, etc.).
(3) Primary organic complexes: plants.
(4) Secondary organic complexes: animals.

This does not by any means exhaust the content of reality: we have as well as (*a*) the atomic scale also,

(*b*) Time and Space.
(*c*) The Soul.
(*d*) God.

About Time and Space Gassendi has little to tell us: they were just the elements that could not be satisfactorily treated on the basis which he had chosen. But the difficulties which might have made it impossible for him to proceed were in a way solved by the method itself. If the world of nature is resolvable into units that are ultimate, impenetrable and irreducible, is there any objection to the universe also being regarded as a sum of irreducibles? Gassendi often speaks of the universe as a whole, and obviously thought of it as in some way one: the way that unity is to be conceived is an interesting question.

Must the whole be one? In some form or other philosophy has always answered yes. But there are three distinct phases to this answer. The last is that which is made possible by the subjective character of modern idealism, in which the unity is derived from the formative factor in knowledge. The first was the naïve unity which appears possible to a mind that can ask without qualification for a single material principle. These extremes have one point in common: they both regard the unity as necessarily belonging to the constitutive principle: they want to weave the universe of one stuff and relegate all differences to the pattern. The reason for this is the inequality of their categories: categories as such should all be equal, but in fact they are not: substance in the one case and spirit in the other have swallowed up all the other aspects of reality, and ceasing to be aspects have become the stuff itself. Now, when the crudeness of the primary standpoint has become

clear, the natural tendency is to move towards the second; and this movement being as yet bound up with the progress of physical science, we find that the first phase of a doctrine that gives its rights to mind is the emphasis laid on law. To think of the law and the matter in such a way as to separate them is half-way toward making them collateral realities, and for a time produces satisfaction in minds that are dimly aware that all matter and no mind makes a dull world. At this point, and while we are as it were on tip-toe for the next development, the addition of a corollary to the original suggestion makes it into a useful basis for thought of one type, and then it is defended against progress as itself an ultimate standpoint. This phenomenon we observe in the history of philosophy more than once, namely the tendency for critical minds to fortify what was originally nothing but a halting ground, and sturdily refusing to go further, proclaim it the goal. The reason is not far to seek. Some minds require to know what they can have, others require to have what they desire: the latter are always too eager for the delicate poise of a mean position: they must fall one way or the other; but their more critical fellows fall neither way, and reserve their energies for rescuing their comrades and restoring once again the mean position. Not indeed quite the same, for the ardent souls 'fall to rise, are baffled to fight better'; and the rescuer himself never quite gets back to the old footing, but to one sufficiently like it to be recognisable. The mean position has always got one characteristic, it has no constitutive

unity. Monism demands a constitutive unity: whatever the stuff is, it must be one throughout. As to the righteousness of this demand I have nothing to say. I content myself with trying to make clear what the man in the mean position has to say for himself, for Gassendi is a type of that class.

The constitutive unity, we can imagine him saying, is an ideal, and no better than other ideals: if it will not work it must be given up. The fact that it appears to be the best ideal cannot help it if we find that it is useless in practice. Further, it may not be the best ideal if we think again, for that the world should be One Being is no great advantage to us, seeing that our interest does not lie in its being but in its doing. What we want then is only a world that is not One Being but one in its being, one in its doing, in all its dealings with me, single and not double. Its being is its being related to me, and all I want is that the entities should be capable of some sort of order, should be thinkable by me as system.[1]

It is at this point that the ardent soul runs ahead of the man in the mean position. He hears his cue in

[1] This question of the relations and comparative values of the monistic and pluralistic ideals, of the One Being and the being at one, is too big to be discussed incidentally. It has been touched upon by Mr. F. C. S. Schiller in *The Riddles of the Sphinx* (p. 353): 'We may reasonably conclude then that monism is a failure, that by assuming *unity* at the outset it incapacitates itself for the task of explaining phenomenal *plurality*, and *a fortiori* for the still higher task of really *uniting* the Many in a significant *union*'; p. 355: 'And Leibnitz might well take for granted that as the Many *do* interact, they must be *capable of interacting*, and that it was unnecessary to demonstrate that what actually existed was also capable of existing.'

the word 'thinkable,' and at once declares that the thinkable is Thought, and therefore the objective is 'ultimately' Thought, and possibly even its objectivity is due to our having cast it from us, 'ejected' it in that carelessness of youth which can be retrieved only by again taking it back into ourselves. But this was exactly what was not meant: we did not want this assimilation of natures: on the contrary, we find it far easier to think of the reciprocal action of things different in nature. We do not say that the iron must really be a magnet or that the soul must be a body, but only that they must have the required affinities. And what are those affinities? Why, the affinities they have as a matter of fact got! Is this philosophy? The ardent soul thinks not. Yet what is the difference? The one wants to make the related factors one in nature, the other makes them different; but both want a relation, and ultimately care nothing so long as there is a relation and the possibility of relations.

We may by now seem to have rather wandered from Gassendi, but the object of these more abstract remarks is to suggest the outline of a position which is none too easy to grasp, and is indeed not so explicit in Gassendi as the above comparisons might suggest. But a few data briefly recalled will bring us back to our bearings. In Gassendi there are three substances—corporeal, non-corporeal, and mixed. There are more than three irreducibles, namely God, Time, Space, the atom, and the Soul.

This is therefore pluralism. Numerical plurality is not the point: else we should have to say there were as many universes as there were atoms. It is

in qualitative plurality that we find the real irreducibleness of the factors in our universe. But if quality is the ground of plurality, where are we to stop? Everything that is different from anything else is qualitatively different, and in respect of the quality is irreducible. The universe is therefore a collection of irreducibles: it falls to pieces in our hands: where is its unity? Just here, in the fact that, before we meddled with it, it succeeded well enough: that if you give up meddling with it now it will go on just as it did before:[1] its unity is the bald and simple fact that it holds together, and the philosopher's business is simply to formulate the ways in which that unity is in fact achieved.

The crudity of this is apparent, but we are not concerned at present with the question is this a good kind of philosophy, but rather is this a good specimen of the kind. To gain further light on this we shall examine three other points in detail, namely (*a*) the place of motion in the system, (*b*) the use of categories, and (*c*) the relation of quantity to quality.

(*a*) Any view of the universe that starts with matter and mind as separate, relies largely on motion to enable it to deal with the inert mass. But the inertia of the matter is itself only a consequence of the attempt to keep a bare entity as the type of all things external: it is, in other words, a multiplication of entities which only leads us into difficulties by driving us to separate in existence the things to

[1] In a letter to Valesius (VI. 111, dated 1641) Gassendi distinguishes two kinds of philosophy, (1) quam appellare τῶν φαινομένων, seu Historicam soleo, (2) qua intimae rerum naturae proprietatesque cognoscantur: . . . haec est quam Deo totam concedo.

which we have given distinction. If we revert to experience we find no such thing as motion in rerum natura, only moving things. We are thus compelled to unite in the unity of common life that which thought divided. For a philosophy like that of Gassendi motion is fundamental and at the same time fraught with temptations. There is always the tendency to use motion as a means of transition from one aspect of reality to another. Taken abstractly, motion is a common denominator: it is one and the same in all things, being nothing but change of place of atoms. But in order to get this common denominator we must pursue the abstraction of matter to such a degree as to make the motion a pure motion, a motion of nothing, and finally nothing at all. If this reduction to non-entity is recognised, motion remains distinct from the moving, and we get another factor which by its ill-defined nature is able to work miracles for us. Activity is then thrust forward as the essential quality of spirit: the quality is thought of as a thing, activity, and material activity being also a kind of activity, it seems clear that activity is the link between mind and matter, and if we can refine the material activity sufficiently we shall have got across the everlasting gulf. If we condemn this as mere abstraction in the interests of either mind or matter, the 'tu quoque' is ready: for if the activity is neither the matter nor the mind, it is yet no worse than matter which does not mentalise or mind that will not materialise.

This pitfall Gassendi avoids by making motion, in the primary sense of inner motion, one with matter. The formula is materia actuosa, not matter

et actio; and this is possible because he refuses to reduce the ultimate to a mere imaginary entity.

There are three critical points of transition, namely from inorganic to organic, from non-sentient to sentient, from unthinking to thinking. Extremists say these are the same; but not so Gassendi, whose scale is

Inorganic,
Organic, { non-sentient,
sentient, { non-intellectual,
intellectual.

Gassendi realises that there is some difficulty in this. He lays emphasis on the distinctness of animus, but when he comes to it, the distinctness is dissolved away. Is it any greater jump from non-intellectual to intellectual than it was from insensile to sensile? Whatever we do with our scale, it must fall to pieces if we try to look for *real* bonds: mind is not joined to body by any gluten or hooks:[1] it is a question of the other aspect, the quality, the what-it-is in its actual being. Through the material sphere we get our transitions mediated objectively by the idea of movement and co-ordination. In the sphere of sensation we have the non-sensile affinities (magnet and iron) leading up to the sensile affinities, which again have endless degrees as we rise from lowest (oyster, *e.g.*) to highest. Complexity is the medium by which we graduate this scale and 'most complex' is the formula for what we call highest. But the fact of being graduated does not mar the reality of the degrees: they remain realities which we graduate but do not fuse. For Gassendi the real difficulty of dealing with mind comes in the

[1] Cp. Lotze, *Microcosmus*, I. 237, 'a constantly renewed cement.'

fact that it implies a kind of movement which is not in line with the others, a movement which returns upon itself as no motion does in the physical sphere; but that is not regarded as a reason for rejecting it, but as a necessity compelling us to recognise that there is more than one kind of motion in the universe, and a kind of reality which is not subject to appulse: there is just the same reason why there *should* be a reality so superior to sense as is the mind, as there is for the eagle with its superiority over the oyster. In both cases the 'should be' is the point we cannot deal with: we have them as facts. The reality of the graduated as actual things, in opposition to the graduation, we shall discuss in section (*c*).

(*b*) Gassendi's exposition of his philosophy is often made more difficult for the reader by the fact that many of the discussions are dialectical disputes about categories. The categories in question are simply recognised headings, and when disputing with some scholastic author or current theory, Gassendi employs the categories as rules of formal disputation.

The prime category is that of substance. Under this fall all corporeal entities without dispute; but trouble arises when a reality is given which is not corporeal, and yet cannot be simply denied. The case then stands exactly as it did with Leucippus. The reality being not-not-ens must be ens, and therefore substance. But this seems to leave us with no protection against hypostatising any concept into a substance. To a certain extent this is guarded against by the use which Gassendi makes of the idea of function. This idea enables us to retain as reali-

ties much that cannot be accurately defined in regard to its being: for we substitute for the being of the thing its doing. In spite of the objective existence which Gassendi gives to things, he adopts the somewhat idealistic method of defining them, and even formulating them from the point of view of their relation to us. Believing that things are what they seem, in all normal cases, we can consistently define the ultimate reality from the experience of it, the manifestation of reality being its own definition. Thus space and time are real, because in experience things and events have spatial and temporal order. The atom, the void, and the soul are real on the same principles. Taking substance in this sense, it equals reality, and reality is for Gassendi a category. Quantity and quality are also categories, of which more later. The other category is that of relation. This is identical with place in the system, and as such it is the final determination of the existent. When we have shown *that* a thing is, *what* it is, and *where* it is, we have done all that man can toward the production of an ordered system of things. It is a noticeable fact that Gassendi makes no use of potentiality as a category, though it was commonly so used: he criticises the particular applications of the idea, but does not state his reasons for rejecting it. It may be surmised, but it is only a surmise, that he considered it a confusion between the categories of relation and substance. In any case it certainly amounted to that, for it made what was only a relation between the parts of a process into an actual property, and left it uncertain whether a thing was what it was or was what it was going

to be. Gassendi was quite scholastic enough to argue that the statement, 'the acorn is the oak,' involved a false use of the verb 'to be,' whether you added 'potentially' or not: he was also philosopher enough to see that it either meant nothing or it implied the unreality of all process, or what he would call the unreality of degrees of being. This was in direct opposition to his own ideas about quantity and quality and their relations.

(*c*) As a rule the category of relation *was* made substantive: that is to say, the being in an order is made to be a reality for the thing as well as for the ordering mind; and the *whole* order is therefore significant for the individual at any individual stage. Hence *A* is said to be potentially *B*. This means that *A* to *B* is a process which we view as a series of states; but so is lowest to highest in any case: relation is a category for all, and only per accidens a special category for some. The relating as such being the same for all, why should it be more easy to say that the acorn is potentially an oak, than to say mud is potentially a man? Yet it is easier (for Gassendi and his contemporaries at least), because there are real, and, as it were, closed circles. Within the species we can understand growth, because it is nutrition and assimilation of the like. Hence, in the closed circle relation is expressible as potentiality. But the definition of the circles comes from experience. Potentiality is therefore not a universal solvent. This seems arbitrary, because the expansion of the given circles is not limited: why should we stop short at any but the most universal terms, say matter, and make everything potentially everything

else? It seems, indeed, that we ought not to stop anywhere short of the mutually exclusive realities, mind and matter. But Gassendi is opposed to the whole frame of mind implied in this, and so far from working up to this irrational stop at the difference of mind from matter, he works down from it to a totally different conclusion. He does not admit that the step from matter to mind is unique: he does not admit that the difference between two substances is really greater than the difference between radical forms of one substance: in any composite there is an unanalysable addition, the form, the being-what-it-is which is revealed only synthetically in the function, the being of the whole as whole. Now mind, he says, is nothing apart from matter: hence mind plus matter is a functional unit. Where is the marvel? *This* complex produces *this* result, and why should there not be this complex, and with it this result? If you say it is unique, so is every other qualitative phenomenon qua qualitative.

This is, I think, the crucial point of Gassendi's thought, and he cannot be understood unless it is grasped. It is exemplified in his whole treatment of the universe of things. It is, moreover, an idea capable of much expansion, but the expansion is what it did not get at the hands of Gassendi. He is doubtless right in keeping quantity and quality apart, right in realising the limits of mechanism, and yet not suppressing the quantitative aspect. It is this grasp of qualitative distinctions that saves him from materialism, it saves him from trying to compromise between mind and matter. But after all quantity

and quality are only categories, both alike objective, ways in which the world of objects can be thought of, formulae for its analysis. There we find the weak point, right at the heart of the whole scheme: so long as the object remains unanalysed and mind and matter are equally objective, so long as the categories are applied to a world of crude objects such that mind and matter are both *equally* objective, we reach the limit; and our opinion on the value of this point decides our estimate of Gassendi. Criticism, aided by the development of philosophy can find flaws only too easily, so much so that it is not worth while to suggest any: yet there are still many who will doubtless find that they can read Gassendi with sympathy and, with all his faults, recognise that he combined, with a vast knowledge of facts, a truly philosophical attempt to reach the truth that is in them.

The philosophical writings of Gassendi perpetually recall to our minds the works of Leibnitz and Lotze both in regard to matter and form. We have already shown that Gassendi is not to be passed over lightly as a mere materialist, a supporter of what Lotze calls 'evil materialism': we now require to see how our author is related to the later Realists and how far he may be regarded as anticipating their work.

Before entering into the details of this subject a word or two must be said with regard to its dangers. A moment's reflection will show that Leibnitz and Lotze can hardly fail to differ one from the other in their whole outlook with that difference which Kant brought into philosophical work of every kind. If we speak of Realism as though it were a line of

thought maintaining itself through an unbroken succession of writers and uninfluenced by other lines of thought, it will soon be apparent that the terms we use are almost the only permanent elements; the letter abides but the spirit changes, and the line of progress which thought follows under one name is often the slow fulfilment of a circle that places it at last adverse to its own starting point. Whole passages in Leibnitz breathe the sentiments of Gassendi: the *Mikrokosmus* is planned with the same comprehensiveness and in the same spirit as the *Physics* of the *Syntagma*: the reader leaves them both with a strong sense of their likeness to Gassendi. In following out the relations and the differences of these writers I shall work with a view chiefly to elucidate Gassendi and limit my remarks to that scope, diverging into some general remarks on the character of the periods under consideration only so far as that purpose requires.

CHAPTER II

LATER VIEWS

(a) LEIBNITZ

To minds of a certain type works such as those of Gassendi are irritating. They continually arouse the question 'Is this philosophy?' and cause a vague unrest which it is difficult to assign to any one feature or characteristic. It is in fact due to the way in which Gassendi and men of his class stop short of the goal for which they seem bound, stop short of the unity which is demanded by our aesthetic nature. Their reason for so doing is a conscientious recognition that they have not succeeded in making their universe truly a One. No unity of the type required was possible until the objective sphere of experience was united to the subjective by such recognition of unity as Kant was able to reach. The influence of Kant will be considered when we come to Lotze: the point is introduced here because we have in Leibnitz, as compared with Gassendi, a most significant point of difference, the logical element.

Gassendi follows the tradition of his school. His logic is a book of canons. We feel that when it is closed its power is at an end. In Leibnitz, on

the contrary, the logical principles are the essence of a logical aspect of all things, and analysis and synthesis as applied to things are so intimately related to the forms of judgment that it would seem as though we might say of the world of Leibnitz that it is a translation of logic into ontology.

There is still some doubt apparent in the literature of philosophy as to whether Leibnitz is to be called an idealist or a realist. This is due probably to the way in which the suppressed logic of Leibnitz gives his realism an idealistic character. What Leibnitz actually does is to talk of a world of real objects whose whole existence depends upon their being given, as though that fact of being given were not in itself as important a characteristic of things as any other. Leibnitz is therefore clear on the point that there are realities and on the individual worth of each separate reality; but in so far as he inadequately recognises the point of contact between self and not-self, he naturally fails to give sufficient consideration to its significance. The origin of this error on the part of Leibnitz is to be found in the fact that he comes to his world of objects with a conceptual attitude—a desire to analyse, and consequently a tendency to say what a thing is without asking *how* it is.

At this point the reader will perhaps pause, recalling the words of Lotze: '*What* things are is thus not incomprehensible to us, for that which is in them they exhibit in their outer manifestation; *how* they can exist and can manifest themselves anyhow is the universal enigma.' It would seem

then that we ask too much in demanding from Leibnitz more information as to *how* the thing becomes. But it is not because Leibnitz gives us no answer that we complain; it is because his answer is given from a prejudicial standpoint. Spinoza had dissipated the individual: his assertion 'omnis determinatio est negatio' left the logical activities of the mind with no focus and deprived conception of its material. Leibnitz, as compared with Spinoza, seems to restore to us our real world. It may not be very hard, or very solid, or very matter of fact—it may indeed be 'idealistic' in a sense—but it is at any rate pluralistic and active. Where then is the ground for complaint?

In his treatment of the doctrine of induction Leibnitz shows that he wholly underrated the philosophic value of the moment of perception. The consequence of this is that he is capable of treating as a subjective construction what he has never shown to be subjective in its nature: he invades the whole region of the not-self with an army of notions whose success depends entirely on accurate information as to the character of the opposing realities. In spite of the appearance of remaining within the legitimate sphere of analysis, and evolving in the closed cell of the monad a mental panorama of reflected Being, Leibnitz really does no such thing; he goes forth into the world of syntheses, and absorbs the advantages of experience without acknowledgment or appreciation.

If it is ever possible to keep two parallel lines of Reality and unite them in a pre-established harmony, it must at least be done with the clear

recognition that all the predicates of reality are only predicates of experiences, that the experiences may be real, but the reality may, none the less, remain aloof, a thing-in-itself. This would only be possible after an analytic of experience: it is *not* possible if the basis of the position is no more than analytic forms of judgment, because the judgment and the mental machinery employed in it all presuppose a given.

To justify Leibnitz in treating the world of physics as he did we require from him some analysis of the given. We assert that he did not furnish this, that in place of analysing the given he treated it as knowable deductively, as an existence to which we can dictate what it must be. He thus gets beyond Gassendi very rapidly, but not very securely. The preponderance given to logic promises us a more penetrative insight into experience as a subjective construction based upon real activities: we hope for just that element which was lacking in Gassendi, a deeper comprehension of the extent to which the understanding makes nature; but in this we are disappointed, for the logical standpoint gives us nothing but categories that we vainly and uncritically re-apply to a world of objects already manufactured and passed without question.

Further attention must be given to this point, because it is the centre of our discussion of the relations between Gassendi and Leibnitz. This can be shown if we return to those categories of experience which are implicit in Gassendi's work.

The category of substance (*v.* p. 264) is used by Gassendi as a form for the classification of what

are commonly called 'things'; it includes also those objects to which experience testifies that they are 'outer.' Gassendi goes so far as to ignore anything that falls beyond the focus of experience: that which the thing does is the actuality of it, and therefore the same as that which the thing is. But it does not follow that my limitations are limitations of the given: the more a writer insists that the being of a thing is the same as its doing, the more strictly is he compelled to admit that the existence of all things is a matter of relations, and in a relation only those capacities can be developed for which *both* the terms are qualified.

In this connexion it is necessary to remember that the post-Kantian philosopher usually works on a method the inverse of that which the pre-Kantian naturally took. *Now* it would be natural to regard the whole X as the given from which A and B might be analytically eliminated. *Then* it was more natural to start with A and B and regard X as the resultant of their relations. The consequence is that the philosopher is compelled to work with terms never completely defined. Spinoza provides for this incomplete exhaustion of the relatum in the case of God: the infinite with infinite possibilities stands over against the other term of the relation as something transcendent and overlapping. If we have in place of a monism a pluralism of reals, every real entity must have these same characteristics so long as it is presupposed as a possibility of relations and not merely regarded as the explicit recognition of what out of the relation is nothing.

Atomism is, on the face of it, a theory of real

ultimates capable of relation and composition. As objects they have no right to such qualities as are regarded as peculiarly subjective. It will therefore not be possible to assert that the atoms as such have any power of appreciating the relations in which they stand: their 'elective affinities' must be inner states, but not perceptions. Gassendi often speaks as though the analogy between attraction in the magnet and the animal was a ground for speculation: he does not use it as a proof that perception has rudimentary forms below the level of animal life. In converting the atom into the monad Leibnitz commits himself to a position he cannot defend, for he asserts that powers or qualities found in aggregates are also found in simple bodies, and thereby destroys at a blow the value of organisation as the ground of functions.

The notion of 'organism' is used by Leibnitz in a purely occasionalistic manner. He is obviously prepared to recognise degrees of organisation as connected in some manner with degrees of functioning power, and graduates his scale of real things in the form of a scale of substances in which new and higher powers are correlated with complexity of structure. But the fact of being organised was never given by Leibnitz due importance and rank among the perceptual facts which make up the world of physics. The reason for this is to be found in the work of Leibnitz as a whole.

Criticism of Leibnitz seems at present to be in vogue. A glance at contemporary literature will show us science and philosophy are both in arms against him. It will be sufficient if we note here a few salient points.

We have already noted that the atomism of Leibnitz differs from that of Gassendi in so far as the former suffuses his whole doctrine with a logical tone and colours it with rationalism. The result is that facts are ignored in the interests of forms of thought. Hence (1) the law of continuity combined with the notion of substance enables Leibnitz to pass from perceived perceptions out to unperceived perceptions, without recognising that thought can thus overrun its material in *any* direction and must curb its tendencies within the limits of the given. (2) The monad is an atom qualified by irrelevant adjectives. The logical process which begins in stripping off predicates from a subject leaves the subject bare: it does not follow that there can be in nature a substance stripped of qualities. The monad which we are thus wrongly led to think of as simple, appears on reflection to require to be complex. We are always tempted to think that our ultimate element must be capable of entering into all relations, and therefore be itself simple and indeterminate. On the contrary, the possibility of relations is, from the point of view of the thing, not a negative but a positive quality, and that which can enter into all relations, like a man capable of occupying any post, must be 'highly qualified.' The intensive quality of the monad may have appeared to Leibnitz to anticipate this difficulty. It is however difficult to conceive how inner or outer qualities are of use to beings whose actuality is not affected though all relations are destroyed.

The last word on Leibnitz must be a recognition of his genius with a confession of his failure. If he

could have reduced his thought to a system it would have been chastened to its advantage. As it is, different lines of thought perpetually open up, and no one of them is fully worked out. For this reason we find flaws and chasms in the structure: matter is one thing physically (prima materia) and another thing psychically: continuity of kind as in the derivation of consciousness from petites perceptions is linked with discontinuity of being in the real world: subjective idealism is perpetually breached by that going-beyond-itself which is the one thing their rationalistic author has denied the monads.

But if the whole fails to exhibit cohesion it has never lacked inspiration and the power to inspire. This I attribute to one quality which it exhibits,—the grasp of unity as required for the being and the understanding of a world. This unity Leibnitz does not attain: his pluralism produces want of unity both in the world as an objective existent and in our thoughts as a reconstruction of it; but he never loses sight of it as a guiding principle, and is only prevented from working it out by the notions of substance and of concepts by which he was incessantly hampered.

As the thought of a unity is the thought of a whole which implicitly contains many parts capable of being themselves brought into prominence, so the thought of the world as a unity has an implicit content whose nature is irrelevant so far as the unity is concerned. There has for so long been a rooted tendency to confine unity to material unity that it may not be out of place to elaborate this point.

The unity of the individual is not affected by the diverse nature of its parts. The possibility of self-unification may be grounded in one or more characteristics. It may be asserted that I could not be a unity unless I had a nervous organism so developed as to have one supreme centre. To this the reply is that the genesis of a unitary being may thus lie in a condition which must first be fulfilled, but the unity, when there is unity, includes its plurality without reference to anything but the possibility of co-operation. A human organism is a unity whose parts are different: not only is a heart not a liver, but one corpuscle is not another: yet the reality of the unity cannot be denied. The fact is that when we speak of a unity we must hold it over against a plurality, and all we require of the parts of a unity is that they should not be capable of collapsing one into another: they must retain what we require of them, namely the power to fill out the whole to which we refer the unity.

Thus ultimate identity of nature, if it meant identity of being, would ruin both concepts, of unity and of plurality: if it does not mean identity of being it means nothing, for two 'identical' natures must always differ by one simple quality, that of not being each other.

Many of these points Leibnitz adumbrates. He seems, however, never to have grasped the relation of conceptual unification to the unity of the perceptually given world. In a word, the idea of unity ran away with him in the form of continuity or persistence of identical natures: a reference to experience as perceptual knowledge of the world

around us would have shown that unity is not translatable through substance into being (giving an ultimate One in kind), but only through co-operation into cohesion. It is useless to assert that unity of nature is presupposed in unity of action: that heart and liver are not different but only distinct, being really qualified to belong to the unity by virtue of unity of nature. This is pure inversion: it is from the effects that we must judge the nature: kinds are only subdivisions of the unity which is not material but formal, which embraces all kinds in the unity of co-operation constituting the organism of nature.

(*b*) LOTZE

The philosophy of Leibnitz appears both disjointed and distorted. Lotze gives us a far more systematic view of things, and the advance he makes is considerable.

Among the advantages which he enjoyed over his predecessors, that of inheriting the results of Kant's labours must necessarily be ranked high. With Kant the opposing tendencies of rationalism and sensationalism were to some extent reconciled: the perceptual order regained the importance rationalism had striven to take from it, and the conceptual order lost none of its significance as organisation of our inner conscious life. Kant gave to his followers two main points: primarily, the necessity for a point of contact between the knower and that which was destined to be known: secondarily, the necessity of recognising that the origin of the object is to be looked for in a rela-

tion. This second point implies that henceforth the term 'object' must be taken in a new sense: it can no longer denote that which is given for consciousness, but only that which is given in consciousness as being outer.

This view of the object is however not satisfactory if we confuse the idea of a reality capable of relations with the idea of qualities as potential or germinal relations. So far as concerns the distinction of substantia phenomenon from its ground, Kant seems to have allowed this confusion to arise. He clearly thinks of our conscious life as a vessel filled from the greater vessel of the Universe: our limitations are the reason why there is a surplus of being over and above the known. The distinction of Being (Beënt) from Existent does not save the situation: for Being cannot be thought of as relationless being, and is therefore either merely undiscovered existence or pure nothing.

It would not be necessary to labour this point if it were not that our thought naturally inclines to regard development as an unfolding of a unitary existence. Whether the thinker regards development as ultimately timeless, or believes that all development is in a real time, he rarely if ever gets to the idea that continuity of development is not the same as unity of being. It is however not less a 'rational' dogma to assert that the seed is the plant than to assert that all development is timeless, more geometrico. The crux in either case is the regress to the Whole. But in the case of the plant our statement does not really concern the whole plant but the whole life-history of the

plant, and obviously omits for its own purposes the continuous natural synthesis involved in the real development expressed in the perceptual order. But if we cannot fix the plant as a Whole, on account of its *length*, so to speak, in respect of time, we feel we can fix the Universe as a Whole because it is always itself. To properly combat this view requires more digression than is here justifiable. I merely state that there is primarily the notorious difficulty of saying the Universe *is* at all (of course if it is a *Universe* we beg the question of its unity by naming it thus), and secondly, that our right to omit the element of real time is very dubious. If we do not omit it, we come to the other view, that all things are a co-existent unity which maintains itself by perpetual re-adjustment of its parts, and moves on from state to state through time. It would be easy at this point to say progresses rather than moves, but there is no need to beg the question as to whether the movement is for better or for worse.

Kant's analysis of the object, then, we regard as faulty in so far as it implies that 'we only know phenomena.' We consider that the phrase appearance of the real should be abolished, and our world should be called not an appearance of reality but the real as it appears. None the less the work of Kant leaves its abiding effect in the impossibility of going back to naïve realism; and not acknowledging that the percipient mind is a real factor in the process of appearing, is in fact the complementary element which allows the real to express itself in the terms of knowledge.

Lotze's philosophy interests us in many ways: the form and matter of the *Mikrokosmus* in particular challenge comparison with the *Syntagma* of Gassendi. We now desire to see especially how the details are handled in the light of the progress made between the days of Gassendi and Lotze. For in a sense Lotze returns to the standpoint of Gassendi: he eliminates in many ways the rationalistic elements which Leibnitz had introduced, and his line of thought can in the main be regarded as continuing that of Gassendi. Leibnitz had tried to 'unite Democritus and Spinoza': subsequent workers had to eliminate the Spinozistic element, and thus free from its encumbrances the Democritian line of development.

The atoms of Democritus were meant to be physical points. The elaboration of the idea of 'points' into a theory of physical, metaphysical, and mathematical points was retrograde. The mathematical points are not points in any relevant sense, and the metaphysical points are physical points interpreted through the concept of mathematical points. The idea that they must be indivisible for thought is irrelevant, because they are perceptual entities. We may think of any unit as twice its own half, but it does not follow that the perceptual datum can be given as a plurality: if, on the contrary, it is never so given we are right in declaring it to be indivisible, *i.e.* a real unit.

Granted that the atom is a real unit, the question arises, How are we to interpret this reality? Our reality as a whole will naturally be regarded as the sum of its parts, allowing that it is not a mere

aggregation but rather an organic totality. Consequently we shall expect the characteristics predicated of the totality to be predicated of the parts. Now Lotze's idea of the totality is coloured with the notion that our aesthetic demands are a reality, and the necessity of regarding the Universe as a whole is not to be divided from the necessity of regarding it as a whole of a certain kind. He therefore finally concludes that the atom is unextended, because this hypothesis alone enables us to regard it as animated throughout.[1] This however, besides being highly conjectural, seems also unnecessary. We have already been told that atoms do not require to be homogeneous, but may enter into composition equally well if they are heterogeneous.[2] From this it has been correctly deduced that unity does not imply identity in the elements: unity is the form in which we interpret the cohesion of heterogeneous elements through elective affinity in any single apparent whole. It is therefore clearly possible that different natures may so combine that the resultant has a nature which belongs to none of its parts. The emergence of this new functional value is dependent on the recognition of something more than mechanical relations. The something more which is thus required is provided by substituting chemical for mechanical laws.

The influence of chemistry upon constructive thought is extremely important for this one reason, that it forces into recognition the fact that, regarded as we must regard it from the point of view of its *doing*, the whole is more than the sum of its parts.

[1] *Mikrokosmus*, III. ch. iv. Engl. Tran. p. 360. [2] *Ibid.* p. 35.

Man is thus no more to be regarded as a machine. Lotze rightly recognises that vitality is grounded in a synthesis of co-operating elements: it is not a separate entity to be imported into a mechanical organism at birth and exported at death. It is out of this aspect of functional activity as dependent on organisation that Lotze gets the right to some of his most pregnant assertions, such *e.g.* as the assertion that the soul *is* where it *acts*. He formulates it most definitely when he opposes the idea that Life is something permanent, 'a higher force' controlling the changes of the body. On the contrary, he says, life and death are not opposed realities: 'for why should we not from this phenomenon (*i.e.* of corruption) rather draw the other conclusion, that the activity of life can last only so long as the chemical composition of the body yields the necessary conditions and that the corruption of death is nothing else than a disturbance of that composition which has now become visible, but by which perhaps long since, though less obviously, the conditions of life have been affected?'[1]

The phraseology of this passage clearly indicates that we are to regard the 'composition' as the 'condition of life.' On another page[2] Lotze states this more definitely. He speaks of life as maintaining itself through 'motive shocks,' which are 'yielded by the processes of constant forming and reforming': it is like burning coal, developed 'not through what it was or through what it is to be, but through the motion of the transition itself.' There is therefore no longer any room for a 'vital force': 'in the

[1] *Mikrokosmus*, III. ch. iv. Engl. Tran. p. 52. [2] *Ibid.* p. 74.

living body every chemical change that takes place sets to work forces not before in existence and brings others to a pause; thus at each moment there is laid for subsequent development a new foundation, such as gives occasion sometimes for a continuance of prior states, sometimes for an evolution into new ones, sometimes by a combination of both, for expansion into a far fuller manifestation of character and activity.'[1]

These passages show clearly the view taken of life. We may now enquire into its degrees and their relation. In the inorganic sphere we have no development and no power of self-maintenance.[2] Plant and animal life are of one kind in this respect: they exhibit reactions which may be described as expressions of their natural conation toward self-preservation. But animal life is distinguished by sentiency and human life by the presence of mental powers. We might then expect a scale of the form a, $a+b$, $a+b+c$; but what we are actually given is a scale of the form a, $x(=a+b)$, $y(=x+c)$. This form of the scale implies that each stage is more than the lower stage plus a quantitative addition: it is emphatically a *new* stage.

Lotze denies that we can construct the scale upward: we cannot start from the lower form and deduce the higher form from a consideration of the possible combination of elements. On the contrary, mental life forms a new datum: our culture 'shows the interval between the two spheres of existence [animal and human] to be so vast that apparently the addition of a wholly new germ of development

[1] *Ibid.* p. 83. [2] *Ibid.* p. 79.

is absolutely necessary to explain the superiority of human culture.'[1] Mind is thus set over against soul, but 'we cannot return to the naïveté of conception that sees in psychic life and mind two different and separate entities.'[1] We must not think of body, soul, and mind as three entities of independent value: our only reason for distinguishing one from the other in the highest unity, that of man, is the fact that they are given separately in the universe, that animals have sentience without mind, and plants have living bodies without either.[2] A real connexion for these must therefore be found, 'for, in whatever reason may consist, it is clear that the soul cannot receive the gift of a new faculty, unless it be so grounded in its constitution that it either must of necessity be evolved from it, or else might be evolved should favourable conditions supervene.'[3]

The 'new faculty' is not a new entity. A psychic substance Lotze rejects: such a phrase implies the reification of what is only given as a group of unique reactions, a living content that 'by its own specific nature directly acquires the capacity to act and be acted on,' and so masquerades as a substance for 'the unwary thinker.' But the idea of a group of reactions has its dangers also. We may be led to ignore the agent itself, whereas 'we cannot make *mind* equivalent to the infinitive *to think*, but feel that it must be *that which thinks*; the essence of things cannot be either existence or activity; it must be that which exists and that which acts.'[4]

[1] *Mikrokosmus*, III. ch. iv. Engl. Tran. p. 532.
[2] *Ibid.* p, 535.
[3] *Ibid.* p. 536.
[4] *Ibid.* p. 548.

This doctrine of mind shows clearly the three phases of Lotze's philosophic thinking, namely the occasionalistic, the idealistic, and the realistic. It will be necessary to make a few remarks on these separately.

(1) Crude occasionalism is self-condemned by its abstractness. Over against a world in itself purely material stands the purely psychical: their unity of action is a parallelism of simultaneous action: the ground of the coincidences is in a third nature. This line of thought may be regarded as wholly antiquated, and its many faults require no resurrection. Among others, it overlooked the fact that a given simultaneity of action is normally a proof of reciprocity unless we have some a priori reasons for assuming reciprocity impossible. In that case we modify our view in the direction of a pre-established harmony. This gives us a certain degree of concreteness in so far as we reduce our sphere of enquiry to the actually given agents: ultimate questions however bring us to a third factor, the creative activity in whose Will we ground all unity of action. But here still the whole necessity of an explanation lies in the presuppositions with which we approach our subject; and this presupposition is, in these cases, the belief that substances are in themselves opposed to relations.

The occasionalism which Lotze offers us is still further modified by continuing the process which makes the view concrete. To do this it is necessary to merge the abstractions into a more and more comprehensive unity. The differences in the given must first of all be modified so that we no longer

oppose one kind of being to another: then the unifying agency must be vested in the totality thus formed, so that we are able to account for all relatedness or reciprocity of action as possible when the totality admits of it, and impossible when it does not so admit of it.

I consider that Lotze makes a great advance on the position of Leibnitz in many respects, but principally in those directions in which his scientific training made him a more judicious and comprehensive thinker. The effect of scientific training is obvious in—(1) those elements of thought which are due to biological and chemical studies; (2) in the truly scientific unwillingness to blur distinctions, and call the higher the same as the lower, or the lower itself 'potentially' a higher form; and (3) in the concept of unity, as somehow requiring to be expressed in terms of action and not substance. But while progress is manifest in these points, the results cannot be of permanent value unless the principles which are used bring us safely to the end.

(2) In occasionalism proper all action, looked at by itself, is disjointed. In the doctrine of Leibnitz it is so connected as to form chains of parallel activities. The series of actions start from points that have a fixed amount of separation, and they maintain this separation throughout. But we refuse to accept this parallelism as ultimate: we do not want to think of one rail as merely accompanying another, but of two rails as so accompanying each other that they form what we rightly call *one* railway line. The unity we require is not approximation, rather the maintenance of the distance is

essential to it. If our lines converge when produced 'ever so far,' they cannot serve our purpose: they destroy their own reality by destroying their significance. And as our rails cease to be a railway line if they converge, so our self and our not-self can only come to insignificance and unreality if they lose their distance and merge.

This metaphor, though quite a legitimate adaptation of Leibnitz's idea of the two clocks, is not perhaps very clear. It is intended to make thinkable the notion of a unity which holds together a plurality in such a way as does not contradict the plurality, but rather insists on the plurality as the one thing essential to the unity. This I take to be the proper meaning of unity if taken concretely or in direct relation to a content which it makes no attempt to annihilate.

It seems to me that in his advance from Occasionalism Lotze reached an idealism which was not compatible with the fundamental idea of the occasionalistic phase of thought. That fundamental idea is that activity of one kind cannot become activity of another kind: lines of activity do not cross: material activity is never mental activity. To this fundamental idea Occasionalism was itself faithless more than once when it tried to run the lines back to that 'ever so far,' in which they might be thought to have met. To carry material actuality back to abstract points and mental activity back to the point at which it is at least so abstract as to have lost its conscious characteristics, is to yield up our clear convictions to the illusions of an indefinite perspective. So crude an error cannot

rashly be attributed to Lotze: whatever his errors are they cannot but be refined, subtle, and significant. Yet that his occasionalism is modified by strong idealism cannot be denied, and it may be that the idealism completes without improving the occasionalism.

As there is a danger that the following remarks may be due to a misunderstanding of Lotze, I shall not attempt to pad out my interpretation of his thought with selected quotations: if the general impression is wrong the selection of definite phrases out of a book is only the addition of insult to injury. I state my own view and leave it to the reader to consult Lotze.

The vice of every system of philosophy is always some degree of abstraction. From the multitude of abstract points of view we trust we are slowly arriving at a concrete view which shall do justice to reality as we live it. Usually the abstract view is patently an intrusion of the influences of study: thought naturally occupies a predominant place in a system which its author has had to think out: less frequently it is an intrusion of temperament, or a mere reaction from the tyranny of the abstract thinker to a full-blooded view of things. In Spinoza we recognise the retiring thinker: in Leibnitz we see the effect of mathematical and logical thought mixed with the busy life of the man of affairs, and the influence of relations in which caution and impenetrability are of first importance. In Lotze we have equally the effects of scientific training, relieved however of any barrier to frankness, and united with a strong ethical and aesthetical tendency.

The ethical temperament, if that term may be used, is on its psychological side prone to believe: the aesthetical is prone to value form: the combination of the two makes possible a transcendent point of view which grasps at form with a strong psychological conviction that it must have real active value. The remarkable passage in which Lotze pleads for the animation of nature is a shock to the reader in its betrayal of new and startling elements in the author's idea of a constructive philosophy. Apart from the particular point, which we do not intend to discuss, the passage is the first awakening of antagonism in a critical reader who will at once proceed to ask whether the whole construction is built on this foundation. He will, I think, find that it is.

The crucial point in the idealism of Lotze is the possibility of constructing and defending the unity of the Whole. The beginning is made from the Kantian element, the phenomenal character of the matter of thought. Kant's view is modified in so far as the doing which we know is related to the being, the that-which-does, in an intimate way, such as does not hold of noumena and phenomena: from this it follows that the appearance is the life of the real rather than its output, the actual doing rather than the product of its work. It follows also from the Kantian element that our construction of reality is itself reality, real doing, though not creative activity. In this concrete point of view is involved the idea that our feelings, cravings, and inspirations are reality, which is the justification for demanding that reality should be presented

as satisfying that craving. As we have a craving for unity and form we can assert that Reality is both one and formed. We see the force of the argument: we ask, what is its value?

To begin with—what is this craving? Is it ever universal, and if not, does the craving for unity in particular spheres justify an advance to a universal unity? The personal element is so manifest here that if consciousness cannot be shown to have that craving as part of its own nature the whole position is endangered. And it must be granted that consciousness has not got it quâ consciousness. To get it at all we must take consciousness as intimately bound up with impulse, will, and individual purpose, and each of these elements, while it enriches the notion of consciousness, draws me further away from the concept of a Whole. I cannot admit that impulse proceeds wholly from consciousness, or that will is entirely guided by reason, or that the unity I desire is capable of projection away from my individual scope to a hyper-individual Whole.

Reflection on the history of thought confirms the belief that ultimate unity is generally made acceptable by withdrawing oneself from the immediate conditions of life. Tradition ascribes this character to the philosopher, and the history of philosophy is a record of attempts to reach the higher truth by climbing down. Lotze gives us a fruitful idea in the notion of a whole whose parts are unified by reciprocal action. But here again he seems to have overstrained his parallel, which I take to be human society. In his war against abstractions he notes

the hypostatising tendency expressed in such phrases as 'the mind of the people,' 'the spirit of the times.' He does not however seem to have fully estimated the value of these indications or seen how far they show that a generalisation expressed in a general term may be the sign of a real conceptual unity which in spite of its reality is not capable of action or reaction. Now, if unity lies in significance, does not the unity of anything partake essentially of the nature of concepts or ideas? And if so, is not the unity the one point about things of which nothing can be said in respect of action or reaction? This, I think, must be allowed, and the consequence follows that in a world of action and reaction unity must be irrelevant.

The point can be stated more clearly and directly, but I have put it in this form because that is the line of argument which Lotze suggests, and which seems to me to apply to him most aptly because it is the inversion of his own progress. The simpler and clearer way is to assert that the unity of the Whole implies a consciousness for which the Whole is a unity. This leads us to the idea of a God. But if God is outside our whole there must conceivably be a 'higher unity' giving a whole which comprises God. Either therefore the Whole is not truly the Whole or there is an infinite progress of wholes constituted by presentation to a unifying agency which is merged with them in ever higher and higher wholes.

We now seem to have reached a reductio ad absurdum. As stated, it is such a reductio; but the absurdity consists in the inner contradiction due

to calling that the Whole which we at the same time do not make all inclusive. This contradiction indicates that the thought movement has become involved in itself. At the same time there emerges an idea which is fruitful and which was partially expressed in the doctrine of monads. The monad is a unity: the ruling monad is also a unity: this latter unity includes plurality, and is therefore properly a unity: the mere monad as simple nature ought not to be called a unity at all. Now, leaving out other implications of the term monad, we may say that the idea of progressive wholes comprehending at each stage the lower wholes, is justifiable. We associate with development range of adaptation, and increased range of adaptation is the objective manifestation of increased organisation of either physical or psychical powers. At each stage the being comprehends a wider plurality, and the scale of being is capable of gradation on this basis.

But is there *any* unity which is not unity for a mind? If we say no, there is no course open but to set over against our Whole a mind for which it is one. This would be a finite God. Not being able to comprehend a world that sums itself any more than a series of feelings that sum themselves, I am unable to see how a pantheistic solution helps us. On the contrary, if I conceived unity to be necessary to the existence of the world, I should deduce from that unity the being of God, and admit that the unity was not only known but also felt and willed, but I could not admit that the world was the same as God, and therefore should not admit that the will was omnipotent. Thus the mere assertion of

unity seems to lead us back into a transcendental dualism.

The conclusion of the whole matter is that unity is meaningless unless that which is unified is unified by some mind. In the first instance the unity will be that of *my* mind, and we must start from that.

Now I take it that in my mind unity is the product of purpose. I do not consciously unify, but I do consciously subordinate: the tendency is to think in what respects the one is many rather than how the many can be one. This is due to the primacy of our practical life, in which the end is given with all its plurality implicit. In action this is obvious: the end is first and the discovery of means subserves it. In the world of things it may be less evident, but that which I call function is ultimately the power to fulfil my end or purpose, and the object as I know it is the manifestation in perception of the thing that has the function. What it is to itself I cannot know and need not ask.

It seems to me futile to speak of all existence as animated, or talk of the 'experience of the atoms' as Lotze does, if the nature of the whole cannot be determined. It is only as parts of a whole that the parts have any claim to these qualities, and if we fail to construct our whole so as to get a new edition of the old doctrine of a world soul (which Lotze confessedly aims to do) the consequences dependent on that proof must fail also.

Human society, coming last, seems the culminating point of all development, and a revelation of the significance of all lower forms of life. In it we have the fullest exhibition of reciprocal activity. But its

unity is dependent on mind, and only a spurious analogy can enable us to regard the universe as a society. If we are not tempted to think of the material world as *associated* atoms, we may yet feel an inclination to regard it as teleologically designed; we should then have formal unity of purpose among diverse actions. But here again it seems impossible to show that there is one supreme end, unless the whole is a unity; or that the whole is a unity, unless there is a supreme end. These ideas are so far implicated that a plurality of being necessitates a plurality of ends. It is equally wrong to reject or to accept teleology as usually advocated. The ethical view is right in emphasising the fact that there are ends in the world. But these ends arise with consciousness, are brought by us into the world, and take their place as forces because our mind directs our action. The hierarchy of ends is the ideal counterpart of the hierarchy of wholes, and each whole which exists for a mind is dominated by an end. But that there should be an end of ends seems unnecessary: we do not seek to unify ends, we seek to multiply them in their diversity: the progress of society is a perpetual production of minds which become more concrete in every generation, each one more capable of interpreting through itself the end for its society, and thereby increasing the number of ends that are efficient factors in life. Self-preservation is the root from which spring all ends, and if the higher organism of society seems to have its need of preservation and its end we must not forget that its existence depends largely on the extent to which individuals realise themselves by

negation. Is it conceivable that for the end of ends negation is equally necessary? Leibnitz thought so when he limited the existent to the compossible. We too may think so if we admit that our totality has emerged from a crowd of possible totalities by a species of selection. If we are not prepared to sublimate our conceptions in this way but return to the world of unfulfilled purposes and unsatisfied desires, let us bravely acknowledge that *all* things need not work together for good, that for such adjustment as we do achieve or help others to achieve we are grateful each to each, and each to all; but at the same time

> 'could you and I with Him conspire
> To grasp this sorry Scheme of Things entire,
> Would we not shatter it to bits, and then
> Remould it nearer to the Heart's Desire?'

(3) In addition to these points of view we have in Lotze what may be called a realistic element. To explain this is, I think, impossible: to explain it away is unjustifiable. It is in opposition to Panlogism that Lotze retains 'nuclei,' irreducible elements, in his system of experience. This is the Leibnitzian factor retained against the Spinozistic trend: it is also the Democritean element preserved through Leibnitz for succeeding writers. No definition of these nuclei is forthcoming: they are primarily reached from the standpoint that all determination is not negation; that thought is a system of relations, but reality includes over and above relations the relata.

To define these nuclei is impossible, because thought in its progress moves away from the

immediate point of contact given in sensation, moves away from the stimulus in which they are revealed, and in working up its material ignores existence in order to concentrate itself upon significance. The nuclei are in this sense the irrational factors.

It is not necessary here to do more than draw attention to this point. The preservation of these nuclei is of course one of the ways in which Lotze defends the content of common consciousness against such idealistic systems as seem to him to dissolve reality into the thin air of pure thought. His general attitude toward this point must be understood by reference to Kant's views as expressed in the *Critique of Pure Reason*. We must also bear in mind the fact that pluralism grounds itself in some measure on the impenetrability of the individual consciousness, an idea which leads us to think of individual minds as being to themselves more than they can ever be to others. Hence the monad with its dual existence, as it is in itself and as it is in other monads in which it is represented. Hence, too, in more refined forms, the idea that to be perfectly intelligible is not to be thought but to be thinkable, an idea expressed by Lotze when he speaks of knowledge as a relation which would be destroyed if the thinker could *be* that which is thought, and wholly absorbing into himself the object, exhaust not only the intelligibility but also the being of that which is known.

Criticism of this view would lead us to consider the claims of a higher unity. This criticism will not be attempted, for it is our immediate purpose to accept Lotze as he is, and only indicate how he

remains in the mean position between the extremes of an idealism for which thought seems to exhaust being and a realism for which thought seems to confront an object only partly intelligible. The peculiar difficulty which Lotze creates for us lies in the extent to which the idealism is carried. For the nuclei certainly seem to be no more than nuclei of sensations, and it is only in so far as these have a peculiar unity which is given to us by the supersensible ground of objects, and not given by us to objects, that they maintain the character of being more than phenomena. They cannot be 'matter' in the crude sense, and if they are the matter of thought they seem to be ultimately subjective affections in a sense that makes it difficult to resist a progress toward pure idealism. Lotze's refusal to make the advance must be ascribed to his idea of the worth of the individual, which is so bound up with the notion of consciousness that it becomes necessary to re-interpret the idea of the nuclei on the analogy of the individual consciousness as non-spatial units that maintain themselves in a unity of co-operation without fusion.

The revulsion which invariably follows excessive systematisation seems to indicate that if ever a 'stable equilibrium' is attained by thought, it will have more of the character of the mean position than of either extreme. For this reason a peculiar interest attaches to the line of thought whose last great representative is Lotze. It may seem at first sight paradoxical that realism should emerge finally as idealistic; but, from the first, atomism combines with realism an idealistic element, and the

preponderance of idealism finally is a natural result due to the character of our progress in the realm of thought.

Seeley has pointed out the way in which History has gradually refined its content. At first it is a complicated mass such as we find it in the times of Livy or Pliny: from this mass various elements detach themselves and evolve into independence: natural history, for example, and political economy are branches that have struck root and grow for themselves, related to rather than dependent on the residuum which now takes the place of the original whole. In a similar way the progress of the sciences has slowly depleted philosophy of its original content and at the same time defined its central elements and true scope. A comparison between such a magnum opus as that of Gassendi and the worth of a modern philosopher shows the effect of progressive specialisation. It suggests also the question, What is to be ultimately the real matter of philosophy in the strict sense?

The answer must be, in a sense, what it has always been, that philosophy co-ordinates and systematises the results of the special sciences. There is however a strong and not unjustifiable tendency to think that the peculiar function of philosophy is the explanation of the possibility of the objects with which the sciences deal: in other words, philosophy is epistemology. In any case it seems clear that the duty of systematisation which falls upon philosophy in no wise compels the philosopher to unify his construction beyond the point which his material will admit. That is to say, the

emphasis must be on co-ordination rather than systematisation, and philosophy mistakes its function if it in any way undertakes to dictate results to the special sciences, as it has notoriously done in some cases. We must, it seems, come back to the view of philosophy as a dialectic of results, a sifting of ends. Above all things, it must follow whithersoever the wind carries it, and not pre-determine its haven in the face of all the forces upon which it relies for progress.

Philosophy is then more than mere epistemology. But the epistemological problem is undoubtedly its own peculiar centre. Upon the decision of the nature of reality it centres its vital energies, and on this point we seem to-day to have arrived at a temporary decision that 'idealism based on realism' is the position which must be accepted for the present, though we may hope it is not the last standpoint.

The reason why no further progress is possible is that as yet the 'nucleus,' as Lotze understood it, remains unresolved. However much may be done to show that objects are ideal, that the ultimate is a unit ideal in its character, the fact remains that the unity characteristic of an existent thing is always a unity whose actuality does not come from the subjective side. It need not be disputed that a thing is a complex of universals; but this cannot blind us to the fact that the reason for any one object being *this particular* complex is to be found in a determination *of* our activity which comes to us, in perception, and does not go forth from us.

The realistic element then must not be overlooked or ignored. But to advocate realism is not

to advocate materialism in any form. This may be taken as self-evident. The formula, 'no object without a subject,' is the last word on that point. But neither is the advocacy of an idealism based on realism any ground for reaching a monism on the idealistic side. In one of its aspects, the formula quoted above means no unity without a consciousness for which the unity exists. And while materialism generates its peculiar monism by ignoring this, idealism advances to its monism by an equal denial of the truth of the formula only obscured by greater subtlety. For extreme idealism expresses the unity of the whole under the form of thought unifying itself, which involves the presentation of thought to thought, or a thought that thinks itself. It is only in default of an attempt to work out this idea that it seems plausible. On further consideration it becomes a regress to infinity just as much as the constitution of a whole by presentation to the mind of God proved an infinite process. The question of the reality of time is the inner point which wrecks idealism of this type. For the assertion of timeless thought is a deduction from the concept of what *such a totality* would be *if there were* such a totality. In experience however we find a sequence of events which is not a mere logical interdependence, but an actual order. Time may, and I think we are safe in saying must, be regarded as subjective; but order in time implies over and above the subjective form an extra-subjective determination.

These subjects are large, and deserve further elaboration. For the present I only desire to

indicate some of the reasons which seem to force one back from the extremes to a middle course of some kind. To define that middle course properly, it would be necessary to write a metaphysic. Gassendi would help but little, for two obvious reasons: he has no epistemology, and his idealistic tendencies are too embryonic, as they were bound to be so long as he could neither estimate the significance of the possibility of objects nor make up his mind as to the nature of time and space. As I have indicated above, criticism finds him an easy victim from this point of attack. His weaknesses are apparent; the interesting point about his work is the way in which it defines problems still unsolved.

If we look in modern philosophy for a match to Gassendi, we shall probably find the nearest approach to one in G. H. Lewes. His 'Reasoned Realism' is very much akin to 'Empirical Realism,' as used above of Gassendi (*v. Problems of Life and Mind*, I. 176). Spencer's position is defined by Lewes as 'Transfigured Realism' (p. 192), 'for that theory professes to be a theory of Perception, and declares Perception to be symbolical; whereas, according to the Principles here expounded, Perception being the resultant of two factors, internal and external, the conclusion deduced is that the object thus felt exists precisely as it is felt: existing for us only in Feeling, its reality is what we feel. . . . Perception, because it is a resultant, not a symbol, does not alter the Real: on the contrary, the object only *is* to us what we feel it to be—it exists in that relation.' Lewes' language is somewhat inaccurate: a few lines lower he says, 'this particular thing

in this particular relation is what it is in this relation, *i.e.* what it is felt to be.' Here 'thing' is put in place of 'object,' and which of the two terms should be used I cannot say: if Lewes meant 'thing,' the position is very like Gassendi's; shall we say 'no better than Gassendi's'? If he means that 'thing' and 'object' are identical (except in so far as the thing has *more* relations than it realises with us), the position is one that Gassendi might have endorsed: for that the real is the existent which reveals itself to the senses, and has more reality (in its unrelated self) than our senses are adequate to, is just what he tries to say.

But we cannot extend to Lewes the consideration which Gassendi deserves on account of his disadvantages. When Lewes says 'the object thus felt exists precisely as it is felt,' he is simply refunding into both terms of the relation the product of their relatedness: he might just as well say that hydrogen and oxygen have each of them all the properties of water. It may be true that perception does not, as a process, alter, that is vitiate, reality; but that statement leaves it open to us to regard the perception as a development of the real grounds of perception and, as such, a process vital to the real. In trying to get away from the notion that being phenomenal is being unreal, Lewes has fallen into the other pit and proves that perception has no real ground: for if reality does not develope in perception, its indifference amounts to non-existence. With Lewes perception seems to be a relation in which both terms are indifferent, and that is not conceivable. If perception involves a

subjective advance from mere sensation to definite apprehension, it must also involve an objective advance from the mere stimulus to the true object.

Gassendi would be in principle nearer to Lewes than to Spencer on the question of perception. It is interesting to think over the points of resemblance between the *Synthetic* Philosophy and the *Syntagma* Philosophicum. The scheme is so similar: the matter so different. The progress of two centuries is condensed in their differences. But the critical question of the nature of the object-in-itself seems to receive an answer from Spencer less acceptable than that of Gassendi. We are however precluded from discussion upon details by a primary difference which completely swamps all similarity. This consists in the deductive character of Spencer's synthetic philosophy. In contrast to this Gassendi's method is reductive. It is indeed true that Spencer gives away his deduction by omitting that most important element, the transition from inorganic to organic: on consideration however it will be clear that the deduction has really failed to vitally connect *any* higher stage with a lower. If the deduction were really successful at any point the evolutionary doctrine could have passed from a method to a theory, and attained that intuitive insight which, as Leibnitz foresaw, would make it *prophetic*. Spencer was overweighted with the possibilities of a doctrine of Force: Gassendi was saved from that, possibly by absence of temptation.

We cannot afford to overlook in modern philosophy the recognition which scholasticism is receiving. The best scholastic philosophy was marked by a

firm grasp on certain ultimate points and by clear if somewhat formal definitions. Its relation to religion put it in close contact with the deepest thought of all ages, while it tended to keep aloof the encroaching sciences. While therefore it erred in dogmatically asserting itself as an authority in spheres over which its formulae had no jurisdiction either by nature or origin, it at the same time retained intact, by force of circumstances, what modern philosophy is striving to redeem from the grasp of an apparently all-victorious science. The points which it thus retained, uncritically but resolutely, were the reality of the spiritual and the necessity of a creator.

The creative factor we still must have. The concept of God is one of those concepts which successive ages refine. But however much we refine the idea, it cannot be wholly refined away. The elimination of sensuous and imaginative elements is only a purification: as culture advances, the construction which we put upon the idea advances from the crudeness of anthropomorphism to other forms which correspond to the higher mental level of the race. And as at one extreme the concept of God, so at the other the concept of matter is perpetually refined and re-edited. But neither seems as yet to have reached the vanishing point, and however comprehensive our scheme of development, it retains the three movements of a given which developes, a form of development which implies more than mere mechanism, and a mind without which the development cannot have come to its recognition.

The first is the matter. The second is the possi-

bility of being intelligible, which must be reluctantly allowed. The third is mind. As regards the second, it must not be over-emphasised at present. To assert that the given is purely intelligible overlooks faults; to assert that it is intelligence, leads to confusion. For while it might be called 'intelligible' through and through, if we had any knowledge of a mind for which it was thus intelligible, in the absence of such knowledge we have to confess that what is not given to our intelligence as intelligence is as much an unintelligible as though there were no such mind. And this limitation to which the absence of any omniscience which we can show forces us, leaves an irrational element which is foreign to us, however much we prophesy its final elimination.

The attempt to remove this from the ethical side is premature. The ethical import of the whole is not a valid ground for universal statements, so long as the whole is not given as such. A view which makes the whole a self-revelation of a Divine mind moves in a circle, constructing the concept of that mind to support its own correlative, the Whole viewed as a One intelligible and ethical in character. It is sounder to regard ethical characteristics as not 'cosmic,' else our will and our thought must be regarded as identical with that which we attribute to God, whereas Spinoza's determination of the voluntas and cognitio Dei as only negatively determinable, must be regarded as the true logical position.

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