CHAPTER VII.

Of Definition.

Section 347. To define a term is to unfold its intension, i.e. to explain its meaning.

Section 348. From this it follows that any term which possesses no intension cannot be defined.

Section 349. Hence proper names do not admit of definition, except just in so far as they do possess some slight degree of intension: Thus we can define the term 'John' only so far as to say that 'John' is the name of a male person. This is said with regard to the original intension of proper names; their acquired intension will be considered later.

Section 350. Again, since definition is unfolding the intension of a term, it follows that those terms will not admit of being defined whose intension is already so simple that it cannot be unfolded further. Of this nature are names of simple attributes, such as greenness, sweetness, pleasure, existence. We know what these things are, but we cannot define them. To a man who has never enjoyed sight, no language can convey an idea of the greenness of the grass or the blueness of the sky; and if a person were unaware of the meaning of the term 'sweetness,' no form of words could convey to him an idea of it. We might put a lump of sugar into his mouth, but that would not be a logical definition.

Section 351. Thus we see that, for a thing to admit of definition, the idea of it must be complex. Simple ideas baffle definition, but at the same time do not require it. In defining we lay out the simpler ideas which are combined in our notion of something, and so explain that complex notion. We have defined 'triangle,' when we analyse it into 'figure' and 'contained by three lines.' Similarly we have defined 'substance' when we analyse it into 'thing' and 'which can be conceived to exist by itself.'

Section 352. But when we get to 'thing' we have reached a limit. The Summum Genus, or highest class under which all things fall, cannot be defined any more than a simple attribute; and for the very good reason that it connotes nothing but pure being, which is the simplest of all attributes. To say that a thing is an 'object of thought' is not really to define it, but to explain its etymology, and to reclaim a philosophical term from its abuse by popular language, in which it is limited to the concrete and the lifeless. Again, to define it

negatively and to say that a thing is 'that which is not nothing' does not carry us any further than we were before. The law of contradiction warrants us in saying as much as that.

Section 353. Definition is confined to subject-terms, and does not properly extend to attributives. For definition is of things through names, and an attributive out of predication is not the name of anything. The attributive is defined, so far as it can be, through the corresponding abstract term.

Section 354. Common terms, other than attributives, ought always to admit of definition. For things are distributed by the mind into classes owing to their possessing certain attributes in common, and the definition of the class-name can be effected by detailing these attributes, or at least a sufficient number of them.

Section 355. It is different with singular terms. Singular terms, when abstract, admit of definition, in so far as they are not names of attributes so simple as to evade analysis. When singular terms are concrete, we have to distinguish between the two cases of proper names and designations. Designations are connotative singular terms. They are formed by limiting a common term to the 'case in hand.' Whatever definition therefore fits the common term will fit also the designation which is formed from it, if we add the attributes implied by the limitations. Thus whatever definition fits the common term 'prime minister' will fit also the singular term 'the present prime minister of England' by the addition to it of the attributes of place and time which are indicated by the expression. Such terms as this have a definite amount of intension, which can therefore be seized upon and expounded by a definition.

Section 356. But proper names, having no original intension of their own, cannot be defined at all; whereas, if we look upon them from the point of view of their acquired intension, they defy definition by reason of the very complexity of their meaning. We cannot say exactly what 'John' and 'Mary' mean, because those names, to us who know the particular persons denoted by them, suggest all the most trifling accidents of the individual as well as the essential attributes of the genus.

Section 357. Definition serves the practical purpose of enabling us mentally to distinguish, or, as the name implies, 'mark off' the thing defined from all other things whatsoever. This may seem at first an endless task, but there is a short cut by which the goal may be reached. For, if we distinguish the thing in hand from the things which it is most like, we shall, 'a fortiori,' have distinguished it from things to

which it bears a less resemblance.

Section 358. Hence the first thing to do in seeking for a definition is to fix upon the class into which the thing to be defined most naturally falls, and then to distinguish the thing in question from the other members of that class. If we were asked to define a triangle, we would not begin by distinguishing it from a hawser, but from a square and other figures with which it is more possible to confound it. The class into which a thing falls is called its Genus, and the attribute or attributes which distinguish it from other members of that class are called its Difference.

Section 359. If definition thus consists in referring a thing to a class, we see a further reason why the summum genus of all things cannot be defined.

Section 360. We have said that definition is useful in enabling us to distinguish things from one another in our minds: but this must not be regarded as the direct object of the process. For this object may be accomplished without giving a definition at all, by means of what is called a Description. By a description is meant an enumeration of accidents with or without the mention of some class-name. It is as applicable to proper names as to common terms. When we say 'John Smith lives next door on the right-hand side and passes by to his office every morning at nine o'clock,' we have, in all probability, effectually distinguished John Smith from other people: but living next, &c., cannot be part of the intension of John Smith, since John Smith may change his residence or abandon his occupation without ceasing to be called by his name. Indirectly then definition serves the purpose of distinguishing things in the mind, but its direct object is to unfold the intension of terms, and so impart precision to our thoughts by setting plainly before us the meaning of the words we are using.

Section 361. But when we say that definition is unfolding the intension of terms, it must not be imagined that we are bound in defining to unfold completely the intension of terms. This would be a tedious, and often an endless, task. A term may mean, or convey to the mind, a good many more attributes than those which are stated in its definition. There is no limit indeed to the meaning which a term may legitimately convey, except the common attributes of the things denoted by it. Who shall say, for instance, that a triangle means a figure with three sides, and does not mean a figure with three angles, or the surface of the perpendicular bisection of a cone? Or again, that man means a rational, and does not mean a speaking, a religious, or an aesthetic animal, or a biped with two eyes, a nose, and a mouth? The only

attributes of which it can safely be asserted that they can form no part of the intension of a term are those which are not common to all the things to which the name applies. Thus a particular complexion, colour, height, creed, nationality cannot form any part of the intension of the term 'man.' But among the attributes common to a class we cannot distinguish between essential and unessential, except by the aid of definition itself. Formal logic cannot recognise any order of priority between the attributes common to all the members of a class, such as to necessitate our recognising some as genera and differentiae and relegating others to the place of properties or inseparable accidents.

Section 362. The art of giving a good definition is to seize upon the salient characteristics of the thing defined and those wherefrom the largest number of other attributes can be deduced as consequences. To do this well requires a special knowledge of the thing in question, and is not the province of the formal logician.

Section 363. We have seen already, in treating of the Heads of Predicables (Section 325), that the difference between genus and difference on the one hand and property on the other is wholly relative to some assumed definition. Now definitions are always to a certain extent arbitrary, and will vary with the point of view from which we consider the thing required to be defined. Thus 'man' is usually contrasted with 'brute,' and from this point of view it is held a sufficient definition of him to say that he is 'a rational animal,' But a theologian might be more anxious to contrast man with supposed incorporeal intelligences, and from this point of view man would be defined as an 'embodied spirit.'

Section 364. In the two definitions just given it will be noticed that we have really employed exactly the same attributes, only their place as genus and difference has been reversed. It is man's rational, or spiritual, nature which distinguishes him from the brutes: but this is just what he is supposed to have in common with incorporeal intelligences, from whom he is differentiated by his animal nature.

[Illustration]

This illustration is sufficient to show us that, while there is no absolute definition of anything, in the sense of a fixed genus and difference, there may at the same time be certain attributes which permanently distinguish the members of a given class from those of all other classes.

Section 365. The above remarks will have made it clear that the intension of a term is often much too wide to be conveyed by any definition; and

that what a definition generally does is to select certain attributes from the whole intension, which are regarded as being more typical of the thing than the remainder. No definition can be expected to exhaust the whole intension of a term, and there will always be room for varying definitions of the same thing, according to the different points of view from which it is approached.

Section 366. Names of attributes lend themselves to definition far more easily than names of substances. The reason of this is that names of attributes are primarily intensive in force, whereas substances are known to us in extension before they become known to us in intension. There is no difficulty in defining a term like 'triangle' or 'monarchy,' because these terms were expressly invented to cover certain attributes; but the case is different with such terms as 'dog,' 'tree,' 'plant,' 'metal,' and other names of concrete things. We none of us have any difficulty in recognising a dog or tree, when we see them, or in distinguishing them from other animals or plants respectively. We are therefore led to imagine that we know the meaning of these terms. It is not until we are called upon for a definition that we discover how superficial our knowledge really is of the common attributes possessed by the things which these names denote.

Section 367. It might be imagined that a common name would never be given to things except in virtue of our knowledge of their common attributes. But as a matter of fact, the common name was first given from a confused notion of resemblance, and we had afterwards to detect the common attributes, when sometimes the name had been so extended from one thing to another like it, that there were hardly any definite attributes possessed in common by the earlier and later members of the class.

Section 368. This is especially the case where the meaning of terms has been extended by analogy, e.g. head, foot, arm, post, pole, pipe, &c.

Section 369. But in the progress of thought we come to form terms in which the intensive capacity is everything. Of this kind notably are mathematical conceptions. Terms of this kind, as we said before, lend themselves readily to definition.

Section 370. We may lay down then roughly that words are easy or difficult of definition according as their intensive or extensive capacity predominates.

Section 371. There is a marked distinction to be observed between the classes made by the mind of man and the classes made by nature, which

are known as 'real kinds.' In the former there is generally little or nothing in common except the particular attribute which is selected as the ground of classification, as in the case of red and white things, which are alike only in their redness or whiteness; or else their attributes are all necessarily connected, as in the case of circle, square and triangle. But the members of nature's classes agree in innumerable attributes which have no discoverable connection with one another, and which must therefore, provisionally at least, be regarded as standing in the relation of inseparable accidents to any particular attributes which we may select for the purposes of definition. There is no assignable reason why a rational animal should have hair on its head or a nose on its face, and yet man, as a matter of fact, has both; and generally the particular bodily configuration of man can only be regarded as an inseparable accident of his nature as a rational animal.

Section 372. 'Real kinds' belong to the class of words mentioned above in which the extension predominates over the intension. We know well enough the things denoted by them, while most of us have only a dim idea of the points of resemblance between these things. Nature's classes moreover shade off into one another by such imperceptible degrees that it is often impossible to fix the boundary line between one class and another. A still greater source of perplexity in dealing with real kinds is that it is sometimes almost impossible to fix upon any attribute which is common to every individual member of the class without exception. All that we can do in such cases is to lay down a type of the class in its perfect form, and judge of individual instances by the degree of their approximation to it. Again, real kinds being known to us primarily in extension, the intension which we attach to the names is hable to be affected by the advance of knowledge. In dealing therefore with such terms we must be content with provisional definitions, which adequately express our knowledge of the things denoted by them, at the time, though a further study of their attributes may induce us subsequently to alter the definition. Thus the old definition of animal as a sentient organism has been rendered inadequate by the discovery that so many of the phenomena of sensation can be exhibited by plants,

Section 373. But terms in which intension is the predominant idea are more capable of being defined once for all. Aristotle's definitions of 'wealth' and 'monarchy' are as applicable now as in his own day, and no subsequent discoveries of the properties of figures will render Euclid's definitions unavailable.

Section 374. We may distinguish therefore between two kinds of definition, namely,

(1) Final.

(2) Provisional.

Section 375. A distinction is also observed between Real and Nominal Definitions. Both of these explain the meaning of a term: but a real definition further assumes the actual existence of the thing defined. Thus the explanation of the term 'Centaur' would be a nominal, that of 'horse' a real definition.

It is useless to assert, as is often done, that a nominal definition explains the meaning of a term and a real definition the nature of a thing; for, as we have seen already, the meaning of a term is whatever we know of the nature of a thing.

Section 376. It now remains to lay down certain rules for correct definition.

Section 377. The first rule that is commonly given is that a definition should state the essential attributes of the thing defined. But this amounts merely to saying that a definition should be a definition; since it is only by the aid of definition that we can distinguish between essential and non-essential among the common attributes exhibited by a class of things. The rule however may be retained as a material test of the soundness of a definition, in the sense that he who seeks to define anything should fix upon its most important attributes. To define man as a mammiferous animal having two hands, or as a featherless biped, we feel to be absurd and incongruous, since there is no reference to the most salient characteristic of man, namely, his rationality. Nevertheless we cannot quarrel with these definitions on formal, but only on material grounds. Again, if anyone chose to define logic as the art of thinking, all we could say is that we differ from him in opinion, as we think logic is more properly to be regarded as the science of the laws of thought. But here also it is on material grounds that we dissent from the definition.

Section 378. Confining ourselves therefore to the sphere with which we are properly concerned, we lay down the following

Rules for Definition.

(1) A definition must be co-extensive with the term defined.

(2) A definition must not state attributes which imply one another.

(3) A definition must not contain the name defined, either directly or by implication.

(4) A definition must be clearer than the term defined.

(5) A definition must not be negative, if it can be affirmative.

Briefly, a definition must be adequate (1), terse (2), clear (4); and must not be tautologous (3), or, if it can be avoided, negative (5).

Section 379. It is worth while to notice a slight ambiguity in the term 'definition' itself. Sometimes it is applied to the whole proposition which expounds the meaning of the term; at other times it is confined to the predicate of this proposition. Thus in stating the first four rules we have used the term in the latter sense, and in stating the fifth in the former.

Section 380. We will now illustrate the force of the above rules by giving examples of their violation.

Rule 1. Violations. A triangle is a figure with three equal sides.

A square is a four-sided figure having all its sides equal.

In the first instance the definition is less extensive than the term defined, since it applies only to equilateral triangles. This fault may be amended by decreasing the intension, which we do by eliminating the reference to the equality of the sides.

In the second instance the definition is more extensive than the term defined. We must accordingly increase the intension by adding a new attribute 'and all its angles right angles.'

Rule 2. Violation. A triangle is a figure with three sides and three angles.

One of the chief merits of a definition is to be terse, and this definition is redundant, since what has three sides cannot but have three angles.

Rule 3. Violations. A citizen is a person both of whose parents were citizens.

Man is a human being.

Rule 4. Violations. A net is a reticulated fabric, decussated at regular intervals.

Life is the definite combination of heterogeneous changes, both simultaneous and successive, in correspondence with external co-existences and sequences.

Rule 5. Violations. A mineral is that which is neither animal nor vegetable.

Virtue is the absence of vice.

Section 381. The object of definition being to explain what a thing is, this object is evidently defeated, if we confine ourselves to saying what it is not. But sometimes this is impossible to be avoided. For there are many terms which, though positive in form, are privative in force. These terms serve as a kind of residual heads under which to throw everything within a given sphere, which does not exhibit certain positive attributes. Of this unavoidably negative nature was the definition which we give of 'accident,' which amounted merely to saying that it was any attribute which was neither a difference nor a property.

Section 382. The violation of Rule 3, which guards against defining a thing by itself, is technically known as 'circulus in definiendo,' or defining in a circle. This rule is often apparently violated, without being really so. Thus Euclid defines an acute-angled triangle as one which has three acute angles. This seems a glaring violation of the rule, but is perfectly correct in its context; for it has already been explained what is meant by the terms 'triangle' and 'acute angle,' and all that is now required is to distinguish the acute-angled triangle from its cognate species. He might have said that an acute-angled triangle is one which has neither a right angle nor an obtuse angle: but rightly preferred to throw the same statement into a positive form.

Section 383. The violation of Rule 4 is known as 'ignotum per ignotius' or 'per aeque ignotum.' This rule also may seemingly be violated when it is not really so. For a definition may be correct enough from a special point of view, which, apart from that particular context, would appear ridiculous. From the point of view of conic sections, it is correct enough to define a triangle as that section of a cone which is formed by a plane passing through the vertex perpendicularly to the base, but this could not be expected to make things clearer to a

person who was inquiring for the first time into the meaning of the word triangle. But a real violation of the fourth rule may arise, not only from obscurity, but from the employment of ambiguous language or metaphor. To say that 'temperance is a harmony of the soul' or that 'bread is the staff of life,' throws no real light upon the nature of the definiend.

Section 384. The material correctness of a definition is, as we have already seen, a matter extraneous to formal logic. An acquaintance with the attributes which terms imply involves material knowledge quite as much as an acquaintance with the things they apply to; knowledge of the intension and of the extension of terms is alike acquired by experience. No names are such that their meaning is rendered evident by the very constitution of our mental faculties; yet nothing short of this would suffice to bring the material content of definition within the province of formal logic.