

## CHAPTER XV

### MATERIAL CONDITIONS OF DEFINITION

#### **Introduction.**

In Deductive Logic, we studied Logical Definition, its nature, rules and limits. We have read that Definition means an explicit statement of the entire connotation of a term, that it should conform to certain rules in order that it may be valid, that it should be distinguished from Description, and that it has certain limits. In this chapter, we shall study the *material conditions* of Definition.

#### **Kinds of Definition.**

**Deductive Definition and Inductive Definition.**—In Deductive Definition, we state the entire connotation of a term, the meaning of which is already fixed and accepted. In Inductive Definition, on the contrary, we try to determine the connotation of a term by an examination of facts. While Deductive Definition aims only at unfolding the connotation *already ascertained* and stating it in a clear and accurate language, Inductive Definition aims at determining the true meaning of a term by reference to the attributes of the class denoted by a term. Thus, *Inductive Definition precedes Deductive Definition*. We first determine the meaning of a term by an examination of facts, and when that meaning is more or less fixed, we employ Deductive Definition: in

Deductive Definition, the accepted connotation is simply unfolded. Where examination of facts is unnecessary, as in the case of the *Abstract Notions* of Geometry and Mathematics, we always employ Deductive Definition : the connotation of "triangle" for example, is fixed, and all that we have to do is to unfold it and state it in an accurate form of expression. But in the case of certain things, we find that their meaning is not so fixed. Hence in defining them, we have first to determine their meaning by an examination of facts, and then to employ a deductive definition. Thus, on examination, we find that the essential and common attributes possessed by men are "animality" and "rationality"—we inductively determine the meaning of the term "man". When the meaning is thus fixed, we employ a deductive definition and say, "Man is a rational animal".

**Real Definition and Nominal Definition.**—A definition is said to *real* when it states the meaning of an actually existing thing ; and it is said to be *nominal* or *verbal* when it merely unfolds the meaning of a name or term, without any reference to the actual existence of the corresponding object.

Much controversy has centred on the question whether we define a *thing*, or a *name*, or a *notion*. *Realists* say that we define *things* ; *Nominalists* hold that we define *names* only ; and *Conceptualists* maintain that we define *notions* or concepts. The correct view is that we define *concepts which are expressed in the form of names*. Definition literally means fixing boundaries, *i.e.*, making something

precise and exact. Now, there is no question of making *things* precise ; it is our *notion* or *idea* of things that is made precise. Hence we define notions. However, notions or concepts are expressed in language and given *names* ; and all concepts (except those which refer to abstractions or imaginary things) correspond to *things*.

**Substantial Definition and Genetic Definition.**—A definition is said to be *substantial* when it states the connotation of the term defined ; and it is said to be *genetic* when it indicates the *way* by which we arrive at the idea of it. Substantial Definitions are thus definitions proper, because they unfold the connotation or essential qualities of the things defined ; while Genetic Definitions merely enable us to have an idea of things by indicating the mode of its genesis or formation. For example, the definition of “triangle” as a three-sided rectilinear figure is a substantial definition ; but the definition that it is formed by a perpendicular plane passing through the apex of a cone is a genetic definition. Similarly, the definition that sensation is an elementary mental phenomenon produced by the stimulation of the peripheral extremity of a sensory nerve when the current is carried to the brain, is a genetic definition of sensation. (There can be no substantial definition of sensation because of its elementary character.) Thus, a substantial definition explains the essence or connotation of a term, while a genetic definition enables us to arrive at an idea of it by indicating the way in which it is formed.

### Material Conditions of Definition. :

The *material* conditions of Definition should be distinguished from the *formal* conditions of Definition. As in deductive reasoning we assume the data to be true without enquiring into their material validity, so in Deductive Definition we assume terms as having a fixed connotation which we have merely to unfold. A formal definition is thus concerned with the way in which we should bring out the connotation of a term and the way in which we should express a definition in language that may give correct and precise information of the term defined. In inductive reasoning, on the contrary, we examine the material validity of the data, assumed as true in deductive reasoning ; hence the material conditions of Definition refer to the rules which should be observed in order to determine the true meaning of a term by reference to the essential attributes of the class denoted by that term. Thus, the material conditions of Definition refer to the rules that govern Inductive Definition. In other words, they are the rules of procedure necessary to ascertain the essential qualities of a term. They are as follows :—

(1) *We should examine the individuals denoted by the term to be defined as well as the individuals denoted by the opposite terms.* This will enable us to discover the important points of *similarity* as well as *difference*. Bain calls this the *positive* and the *negative* method of definition. It is by the employment of the positive and the negative method that we can ascertain the true import or meaning of a class or term. Thus, to define "Matter", "Solid",

“Metal”, or “Food”, we must examine representative examples of these classes as well as those of the opposite classes—“Mind”, “Liquid”, “Non-metals”, and Poison (or Stimulant)—and thereby find out the essential points of resemblance and difference to be included in the definition.

As it is impossible to assemble *all* the individuals belonging to a class, we are to select, for comparison and contrast, the *representative members* of the class to be defined as well as those of the opposite classes.

(2) *We should include in the definition only the fundamental qualities from which many other important qualities follow.* The reason of this rule is evident from the very nature of definition which aims at conveying *correct* information of a class in the *briefest* possible form. Of the several points of resemblance and difference discovered by comparison and contrast, only the fundamental and essential qualities are to be included in the definition.

(3) *We should take into account the knowledge supplied by the sciences in framing a definition.* Definition is concerned with the connotation of a term, and the connotation of a term is determined by *scientific investigation*, and not by *popular usage*. A definition resting merely on popular estimate cannot be as stable and accurate as the definition resting on the qualities proved to be fundamental by scientific research. The *golden rule of definition*, therefore, is to take into account only the most important points in the definition of a class.

It is pointed out by some writers that Induc-

tive Definition, involving the processes mentioned above, is impracticable. The alleged difficulties are : (1) the number of individuals constituting a class is too large. Even the number of *representative instances* is at times so numerous and various (as in the case of animals or plants) that it cannot be adequately considered for a correct definition. (2) There are some doubtful instances which may as well be brought under one class as under its opposite. They are called *marginal instances*, and no hard and fast definitions are possible in their cases. For instance : Is jelly a solid or a liquid ? Is arsenic a metal or a non-metal ? Is sponge a plant or an animal ?

Some logicians have suggested that, in order to meet the above mentioned difficulties, we should employ a form of definition called *Definition by Type*. A *type* means a member of a class which possesses the characteristics of that class in a marked and prominent degree. *Definition by Type consists in referring to a member of the class, which possesses the characteristics of the class to a marked and prominent degree, so that in defining the type, we define the class.* For example, a Chinese may be said to be the type of the Mongolian race, possessing a yellow skin, a broad head, a flat nose, etc., and instead of enumerating the essential characteristics of the Mongolian, we simply point to the Chinese.

But definition by type, far from removing the difficulties, really puts the cart before the horse. How are we to know whether the Type possesses the essential qualities in a marked degree, without

knowing what these qualities are? The selection of the Type presupposes a knowledge of the essential qualities. In order to find out the Type, it is necessary to know the essential qualities of a class, and this can be done only by Definition. Thus, it is Definition that determines the Type, and not the Type that determines Definition. Moreover, Types are more variable than Definitions; hence they are less dependable than Definitions.

In defence of the Inductive Definition, it may be pointed out that the two alleged difficulties (namely, that arising out of the numerousness of the individuals constituting a class, and that arising out of the possibility of marginal instances) are untenable for the following reasons:—

(1) It is not necessary to examine all the members of a class in order to discover its essential attributes which are to be included in its definition. An examination of a few representative instances and at times a careful and exhaustive analysis of even a single instance may enable us to find out such attributes.

(2) The marginal instances do not invalidate a definition, since they are but exceptions to the rule. Although we may not be able to determine precisely the character of a marginal instance lying between two opposite classes, yet we never confound the opposite classes. For instance, the uncertainty as to whether sponge is a plant or an animal would not be admitted as a reason for confounding a plant and an animal.