# CHAPTER XXII

## Nomenclature, Definition, Predicables

Section 1. Precision of thought needs precision of language for the recording of such thought and for communicating it to others. We can often remember with great vividness persons, things, landscapes, changes and actions of persons or things, without the aid of language (though words are often mixed with such trains of imagery), and by this means may form judgments and inferences in particular cases; but for general notions, judgments and inferences, not merely about this or that man, or thing, but about all men or all kinds of things, we need something besides the few images we can form of them from observation. Even if we possess generic images, say, of 'horse' or 'cat' (that is, images formed, like composite photographs, by a coalescence of the images of all the horses or cats we have seen, so that their common properties stand out and their differences frustrate and cancel one another), these are useless for precise thought; for the generic image will not correspond with the general appearance of horse or cat, unless we have had proportional experience of all varieties and have been impartially interested in all; and, besides, what we want for general thought is not a generic image of the appearance of things, though it were much more definite and fairly representative than such images ever are, but a general representation of their important characters; which may be connected with internal organs, such as none but an anatomist ever sees. We require a symbol connected with the general character of a thing, or quality, or process, as scientifically determined, whose representative truth may be trusted in ordinary cases, or may be verified whenever doubt arises. Such symbols are for most purposes provided by language; Mathematics and Chemistry have their own symbols.

Section 2. First there should be "a name for every important meaning": (a) A Nomenclature, or system of the names of all classes of objects, adapted to the use of each science. Thus, in Geology there are names for classes of rocks and strata, in Chemistry for the elements and their compounds, in Zoology and Botany for the varieties and species of animals and plants, their

genera, families and orders.

To have such names, however, is not the whole aim in forming a scientific language; it is desirable that they should be systematically significant, and even elegant. Names, like other instruments, ought to be efficient, and the efficiency of names consists in conveying the most meaning with the least effort. In Botany and Zoology this result is obtained by giving to each species a composite name which includes that of the genus to which it belongs. The species of Felidae given in chap. xvii. Section 7, are called Felis leo (lion), Felis tigris (tiger), Felis leopardus (leopard), Felis concolor (puma), Felis lyncus (European lynx), Felis catus (wild cat). In Chemistry, the nomenclature is extremely efficient. Names of the simpler compounds are formed by combining the names of the elements that enter into them; as Hydrogen Chloride, Hydrogen Sulphide, Carbon Dioxide; and these can be given still more briefly and efficiently in symbols, as HCl, H2S, CO2. The symbolic letters are usually initials of the names of the elements: as C = Carbon, S = Sulphur; sometimes of the Latin name, when the common name is English, as Fe = Iron. Each letter represents a fixed quantity of the element for which it stands, viz., the atomic weight. The number written below a symbol on the right-hand side shows how many atoms of the element denoted enter into a molecule of the compound.

(b) A Terminology is next required, in order to describe and define the things that constitute the classes designated by the nomenclature, and to describe and explain their actions.

(i) A name for every integral part of an object, as head, limb, vertebra, heart, nerve, tendon; stalk, leaf, corolla, stamen, pistil; plinth, frieze, etc. (ii) A name for every metaphysical part or abstract quality of an object, and for its degrees and modes; as extension, figure, solidity, weight; rough, smooth, elastic, friable; the various colours, red, blue, yellow, in all their shades and combinations and so with sounds, smells, tastes, temperatures. The terms of Geometry are employed to describe the modes of figure, as angular, curved, square, elliptical; and the terms of Arithmetic to express the degrees of weight, elasticity, temperature, pitch of sound. When other means fail, qualities are suggested by the

names of things which exhibit them in a salient way; figures by such terms as amphitheatre, bowl-like, pear-shaped, egg-shaped; colours by lias-blue, sky-blue, gentian-blue, peacock-blue; and similarly with sounds, smells and tastes. It is also important to express by short terms complex qualities, as harmony, fragrance, organisation, sex, symmetry, stratification.

(iii) In the explanation of Nature we further require suitable names for processes and activities: as deduction, conversion, verification, addition, integration, causation, tendency, momentum, gravitation, aberration, refraction, conduction, affinity, combination, germination, respiration, attention, association, development.

There may sometimes be a difficulty in distinguishing the terms which stand for qualities from those that express activities, since all qualities imply activities: weight, for example, implies gravitation; and the quality heat is also a kind of motion. The distinction aimed at lies between a quality as perceived by means of an effect upon our senses (as weight is resistance to our effort in lifting; heat, a sensation when we approach fire), and that property of a body which is conceived to account for its energy (as gravitation that brings a body to the ground, or physical heat that expands an iron bar or works an engine). The former class of words, expressing qualities, are chiefly used in description: the latter class, expressing activities, are chiefly needed in explanation. They correspond respectively, like classification and explanation, with the static and dynamic aspects of Nature.

The terms of ordinary language fall into the same classes as those of science: they stand for things, classes of things, parts, or qualities, or activities of things; but they are far less precise in their signification. As long as popular thought is vague its language must be vague; nor is it desirable too strictly to correct the language whilst the thought is incorrigible. Much of the effect of poetry and eloquence depends upon the elasticity and indirect suggestiveness of common terms. Even in reasoning upon some subjects, it is a mistake to aim at an unattainable precision. It is better to be vaguely right than exactly wrong. In the criticism of manners, of fine art, or of literature, in politics, religion and moral philosophy, what we are anxious to say is often far from clear to

ourselves; and it is better to indicate our meaning approximately, or as we feel about it, than to convey a false meaning, or to lose the warmth and colour that are the life of such reflections. It is hard to decide whether more harm has been done by sophists who take a base advantage of the vagueness of common terms, or by honest paralogists (if I may use the word) who begin by deceiving themselves with a plausible definiteness of expression, and go on to propagate their delusions amongst followers eager for systematic insight but ignorant of the limits of its possibility.

Section 3. A Definition is necessary (if possible) for every scientific name. To define a name is to give a precise statement of its meaning or connotation. The name to be defined is the subject of a proposition, whose predicate is a list of the fundamental qualities common to the things or processes which the subject denotes, and on account of possessing which qualities this name is given to them.

Thus, a curve is a line of which no part is straight. The momentum of a moving body is the product of its mass and its velocity (these being expressed in numbers of certain units). Nitrogen is a transparent colourless gas, atomic weight 14, specific gravity .9713, not readily combining, etc. A lion is a monodelphian mammal, predatory, walking on its toes, of nocturnal habits, with a short rounded head and muzzle; dental formula: Incisors (3-3)/(3-3), canines (1-1)/(1/1), praemolars (3-3)/(2-2), molars (1-1)/(1-1) = 30; four toes on the hind and five on the fore foot, retractile claws, prickly tongue, light and muscular in build, about 9_ feet from muzzle to tip of tail, tawny in colour, the males maned, with a tufted tail. If anything answers to this description, it is called a lion; if not, not: for this is the meaning of the name.

For ordinary purposes, it may suffice to give an Incomplete Definition; that is, a list of qualities not exhaustive, but containing enough to identify the things denoted by the given name; as if we say that a lion is ‘a large tawny beast of prey with a tufted tail.’ Such purposes may also be served by a Description; which is technically, a proposition mentioning properties sufficient to distinguish the things denoted, but not the properties that enter into the definition; as if nitrogen be indicated as the gas that constitutes

4/5 of the atmosphere.

Section 4. The rules for testing a Definition are: I.–As to its Contents–

(1) It must state the whole connotation of the name to be defined.

(2) It must not include any quality derivative from the connotation. Such a quality is called a Proprium. A breach of this rule can do no positive harm, but it is a departure from scientific economy. There is no need to state in the definition what can be derived from it; and whatever can be derived by causation, or by mathematical demonstration, should be exhibited in that manner.

(3) It must not mention any circumstance that is not a part of the connotation, even though it be universally found in the things denoted. Such a circumstance, if not derivable from the connotation, is called an Accident. That, for example, the lion at present only inhabits the Old World, is an accident: if a species otherwise like a lion were found in Brazil, it would not be refused the name of lion on the score of locality. Whilst, however, the rules of Logic have forbidden the inclusion of proprium or accident in a definition, in fact the definitions of Natural History often mention such attributes when characteristic. Indeed, definitions of superordinate classes–Families and Orders–not infrequently give qualities as generally found in the subordinate classes, and at the same time mention exceptional cases in which they do not occur.

II.–As to its Expression–

(4) A Definition must not include the very term to be defined, nor any cognate. In defining 'lion' we must not repeat 'lion,' nor use 'leonine'; it would elucidate nothing.

(5) It must not be put in vague language.

(6) It must not be in a negative form, if a positive form be obtainable. We must not be content to say that a lion is 'no vegetarian,' or 'no lover of daylight.' To define a curve as a line 'always changing its direction' may be better than as 'in no part

straight.'

Section 5. The process of determining a Definition is inseparable from classification. We saw that classification consists in distributing things into groups according to their likenesses and differences, regarding as a class those individuals which have most qualities in common. In doing so we must, of course, recognise the common qualities or points of likeness; and to enumerate these is to define the name of the class. If we discover the qualities upon which a class is based by direct observation and induction, by the same method we discover the definition of its name.

We saw also that classification is not merely the determination of isolated groups of things, but a systematic arrangement of such groups in relation to one another. Hence, again, Definitions are not independent, but relative to one another; and, of course, in the same way as classes are relative. That is to say, as a class is placed in subordination to higher or more comprehensive groups, so the definition of its name is subordinate to that of their names; and as a class stands in contrast with co-ordinate classes (those that are in the same degree of subordination to the same higher groups), so the definition of its name is in contrast or co-ordination with the definitions of their names. Lion is subordinate to Felis, to Digitigrade, to Carnivore and so on up to Animal; and, beyond the Animal Kingdom, to Phenomenon; it is co-ordinate with tiger, puma, etc.; and more remotely it is co-ordinate with dog, jackal, wolf, which come under Canis–a genus co-ordinate with Felis. The definition of lion, therefore, is subordinate to that of Felis, and to all above it up to Phenomenon; and is co-ordinate with that of tiger, and with all species in the same grade. This is the ground of the old method of definition per genus et differentiam.

The genus being the next class above any species, the differentia or Difference consists of the qualities which mark that species in addition to those that mark the genus, and which therefore distinguish it from all other species of the same genus. In the above definition of lion, for example, all the properties down to "light and muscular in build" are generic, that is, are possessed by the whole genus, Felis; and the remaining four (size, colour, tufted tail, and mane in the male) are the Difference or specific properties,

because in those points the lion contrasts with the other species of that genus. Differences may be exhibited thus:

| Lion. | Tiger. |
|---|---|
| Size: about 9 ft from nose to tip of tail. | About 10 feet. |
| Colour: tawny. | Warm tawny, striped with black. |
| Tail: tufted. | Tapering. |
| Mane: present in the male. | Both sexes maneless. |

There are other differences in the shape of the skull. In defining lion, then, it would have been enough to mention the genus and the properties making up the Difference; because the properties of the genus may be found by turning to the definition of the genus; and, on the principle of economy, whatever it is enough to do it is right to do. To define 'by genus and difference' is a point of elegance, when the genus is known; but the only way of knowing it is to compare the individuals comprised in it and in co-ordinate genera, according to the methods of scientific classification. It may be added that, as the genus represents ancestral derivation, the predication of genus in a definition indicates the remote causes of the phenomena denoted by the name defined. And this way of defining corresponds with the method of double naming by genus and species: Felis leo, Felis tigris, etc.; Vanessa Atalanta, Vanessa Io, etc.

The so-called Genetic Definition, chiefly used in Mathematics, is a rule for constructing that which a name denotes, in such a way as to ensure its possessing the tributes connoted by the name. Thus, for a circle: Take any point and, at any constant distance from it, trace a line returning into itself. In Chemistry a genetic definition of any compound might be given in the form of directions for the requisite synthesis of elements.

Section 6. The chief difficulty in the definition of scientific names consists in determining exactly the nature of the things denoted by them, as in classifying plants and animals. If organic species are free growths, continually changing, however gradually, according as circumstances give some advantage to one form over others, we may expect to find such species branching into varieties, which

differ considerably from one another in some respects, though not enough to constitute distinct species. This is the case; and, consequently, there arises some uncertainty in collecting from all the varieties those attributes which are common to the species as a whole; and, therefore, of course, uncertainty in defining the species. The same difficulty may occur in defining a genus, on account of the extent to which some of its species differ from others, whilst having enough of the common character to deter the classifier from forming a distinct genus on their account. On the other hand the occurrence of numerous intermediate varieties may make it difficult to distinguish genera or species at all. Even the Kingdoms of plants and animals are hard to discriminate at the lowest levels of organisation. Now, where there is a difficulty of classification there must be a corresponding difficulty of definition.

It has been proposed in such cases to substitute a Type for a Definition; to select some variety of a species, or species of a genus, as exhibiting its character in an eminent degree, and to regard other groups as belonging to the same species or genus, according as they agree more with this type than with other types representing other species or genera. But the selection of one group as typical implies a recognition of its attributes as prevailing generally (though not universally) throughout the species or genus; and to recognise these attributes and yet refuse to enumerate them in a definition, seems to be no great gain. To enumerate the attributes of the type as an Approximate Definition of the species or genus, true of most of the groups constituting the species or genus, answers the same purpose, is more explicit, and can mislead no one who really attends to the exposition. An approximate definition is, indeed, less misleading than the indication of a type; for the latter method seems to imply that the group which is now typical has a greater permanence or reality than its co-ordinate groups; whereas, for aught we know, one of the outside varieties or species may even now be superseding and extinguishing it. But the statement of a definition as approximate, is an honest confession that both the definition and the classification are (like a provisional hypothesis) merely the best account we can give of the matter according to our present knowledge.

Section 7. The limits of Definition are twofold: (a) A name whose meaning cannot be analysed cannot be defined. This limitation meets us only in dealing with the names of the metaphysical parts or simple qualities of objects under the second requisite of a Terminology. Resistance and weight, colour and its modes, many names of sounds, tastes, smells, heat and cold–in fact, whatever stands for an unanalysable perception, cannot be made intelligible to any one who has not had experience of the facts denoted; they cannot be defined, but only exemplified. A sort of genetic definition may perhaps be attempted, as if we say that colour is the special sensation of the cones of the retina, or that blue is the sensation produced by a ray of light vibrating about 650,000,000,000,000 times a second; but such expressions can give no notion of our meaning to a blind man, or to any one who has never seen a blue object. Nor can we explain what heat is like, or the smell of tobacco, to those who have never experienced them; nor the sound of C 128 to one who knows nothing of the musical scale.

If we distinguish the property of an object from the sensation it excites in us, we may define any simple property as 'the power of producing the sensation'; the colour of a flower as the power of exciting the sensation of colour in us. Still, this gives no information to the blind nor to the colour-blind. Abstract names may be defined by defining the corresponding concrete: the definition of 'human nature' is the same as of 'man.' But if the corresponding concrete be a simple sensation (as blue), this being indefinable, the abstract (blueness) is also indefinable.

(b) The second limit of Definition is the impossibility of exhausting infinity, which would be necessary in order to convey the meaning of the name of any individual thing or person. For, as we saw in chap. iv., if in attempting to define a proper name we stop short of infinity, our list of qualities or properties may possibly be found in two individuals, and then it becomes the definition of a class-name or general name, however small the actual class. Hence we can only give a Description of that which a proper name denotes, enumerating enough of its properties to distinguish it from everything else as far as our knowledge goes.

Section 8. The five Predicables (Species, Genus, Difference, Proprium, Accident) may best be discussed in connection with Classification and Definition; and in giving an account of Classification, most of what has to be said about them has been anticipated. Their name, indeed, connects them with the doctrine of Propositions; for Predicables are terms that may be predicated, classified according to their connotative relation to the subject of a proposition (that is, according to the relation in which their connotation stands to the connotation of the subject): nevertheless, the significance of the relations of such predicates to a subject is derivative from the general doctrine of classification.

For example, in the proposition 'X is Y,' Y must be one of the five sorts of predicables in relation to X; but of what sort, depends upon what X (the subject) is, or means. The subject of the proposition must be either a definition, or a general connotative name, or a singular name.

If X be a definition, Y must be a species; for nothing but a general name can be predicated of a definition: and, strictly speaking, it is only in relation to a definition (as subject) that species can be a predicable; when it is called Species predicabilis (1).

If X be a connotative name, it is itself a species (Species subjicibilis); and the place of the subject of a proposition is the usual one for species. The predicate, Y, may then be related to the species in three different ways. First, it may be a definition, exactly equivalent to the species;–in fact, nothing else than the species in an explicit form, the analysis of its connotation. Secondly, the predicate may be, or connote, some part only of the definition or connotation of the species; and then it is either genus (2), or difference (3). Thirdly, the predicate may connote no part of the definition, and then it is either derivable from it, being a proprium (4), or not derivable from it, being an accident (5). These points of doctrine will be expanded and illustrated in subsequent pages.

If X be a singular name, deriving connotation from its constituent terms (chap. iv. Section 2), as 'The present Emperor of China,' it may be treated as a Species subjicibilis. Then that he is 'an absolute monarch,' predicates a genus; because that is a genus of

'Emperor,' a part of the singular name that gives it connotation. That he wears a yellow robe is a proprium, derivable from the ceremonial of his court. That he is thirty years of age is an accident.

But if X be a proper name, having no connotation, Y must always be an accident; since there can then be no definition of X, and therefore neither species, genus, difference, nor proprium. Hence, that 'John Doe is a man' is an accidental proposition: 'man' is not here a Species predicabilis; for the name might have been given to a dog or a mountain. That is what enables the proposition to convey information: it would be useless if the proper name implied 'humanity.'

'Species' is most frequently used (as in Zoology) for the class denoted by a general name; but in Logic it is better to treat it as a general name used connotatively for the attributes possessed in common by the things denoted, and on account of which they are regarded as a class: it is sometimes called the Essence (Section 9). In this connotative sense, a species is implicitly what the definition is explicitly; and therefore the two are always simply convertible. Thus, 'A plane triangle' (species) is 'a figure enclosed by three straight lines' (definition): clearly we may equally say, 'A figure enclosed by three straight lines is a plane triangle.' It is a simple identity.

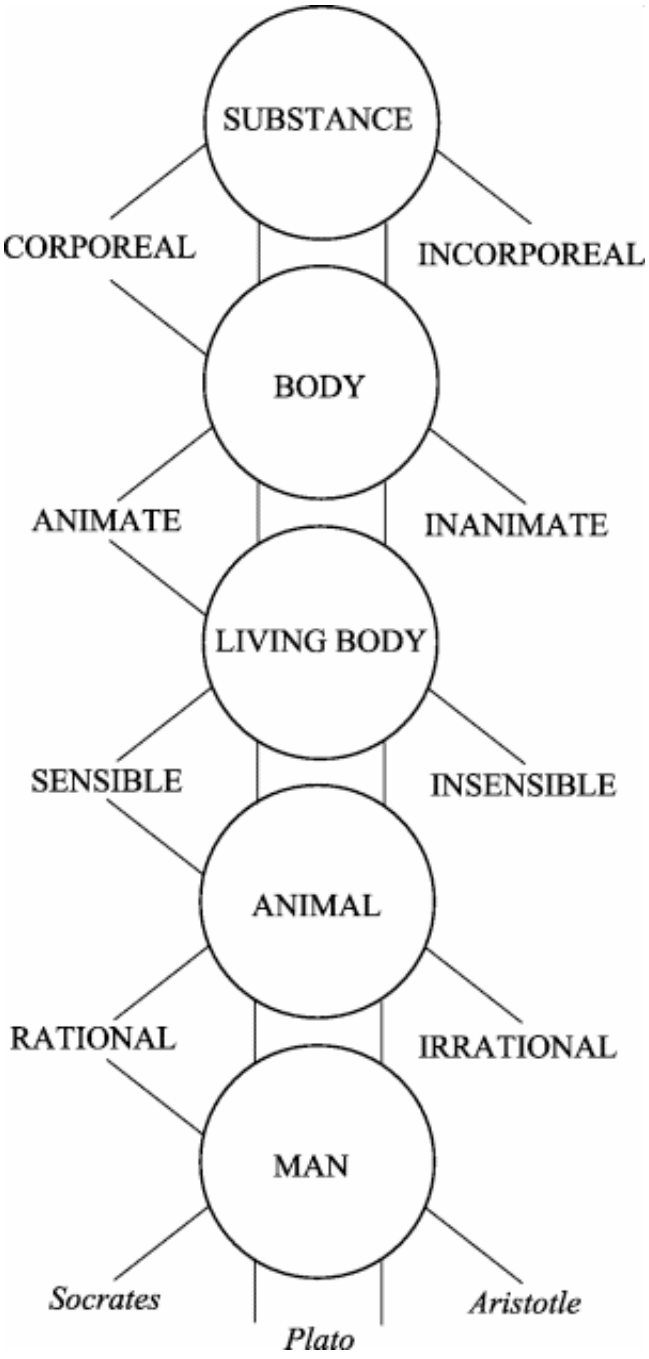
A genus is also commonly viewed denotatively, as a class containing smaller classes, its species; but in Logic it is, again, better to treat it connotatively, as a name whose definition is part of the definition of a given species.

A difference is the remainder of the definition of any species after subtracting a given genus. Hence, the genus and difference together make up the species; whence the method of definition per genus et differentiam (ante, Section 5).

Whilst in Botany and Zoology the species is fixed at the lowest step of the classification (varieties not being reckoned as classes), and the genus is also fixed on the step next above it, in Logic these predicables are treated as movable up and down the ladder: any

lower class being species in relation to any higher; which higher class, wherever taken, thus becomes a genus. Lion may logically be regarded as a species of digitigrade, or mammal, or animal; and then each of these is a genus as to lion: or, again, digitigrade may be regarded as a species of mammal, or mammal as a species of animal. The highest class, however, is never a species; wherefore it is called a Summum Genus: and the lowest class is never a genus; wherefore it is called an Infima Species. Between these two any step may be either species or genus, according to the relation in which it is viewed to other classes, and is then called Subaltern. The summum genus, again, may be viewed in relation to a given universe or suppositio (that is, any limited area of existence now the object of attention), or to the whole universe. If we take the animal kingdom as our suppositio, Animal is the summum genus; but if we take the whole universe, 'All things' is the summum genus.

"Porphyry's tree" is used to illustrate this doctrine. It begins with a summum genus, 'Substance,' and descends by adding differences, step by step, to the infima species, 'Man.' It also illustrates Division by Dichotomy.




Beginning with 'Substance,' as summum genus, and adding the difference 'Corporeal,' we frame the species 'Body.' Taking 'Body' as the genus and adding the difference 'Animate,' we frame the species 'Living Body;' and so on till 'Man' is reached; which, being infima species, is only subdivisible into individuals. But the division of Man into individuals involves a change of principle; it is a division of the denotation, not an increase of the connotation as

in the earlier steps. Only one side of each dichotomy is followed out in the 'tree': if the other side had been taken, Incorporeal Substance would be 'Spirit'; which might be similarly subdivided.

Genus and species, then, have a double relation. In denotation the genus includes the species; in connotation the species includes the genus. Hence the doctrine that by increasing the connotation of a name we decrease its denotation: if, for example, to the definition of ‘lion’ we add ‘inhabiting Africa,’ Asiatic lions are no longer denoted by it. On the other hand, if we use a name to denote objects that it did not formerly apply to, some of the connotation must be dropped: if, for example, the name ‘lion’ be used to include ‘pumas,’ the tufted tail and mane can no longer be part of the meaning of the word; since pumas have not these properties.

This doctrine is logically or formally true, but it may not always be true in fact. It is logically true; because wherever we add to the connotation of a name, it is possible that some things to which it formerly applied are now excluded from its denotation, though we may not know of any such things. Still, as a matter of fact, an object may be discovered to have a property previously unknown, and this property may be fundamental and co-extensive with the denotation of its name, or even more widely prevalent. The discovery that the whale is a mammal did not limit the class ‘whale’; nor did the discovery that lions, dogs, wolves, etc., walk upon their toes, affect the application of any of these names.

Similarly, the extension of a name to things not previously denoted by it, may not in fact alter its definition; for the extension may be made on the very ground that the things now first denoted by it have been found to have the properties enumerated in its definition, as when the name ‘mammal’ was applied to whales, dolphins, etc. If, however, ‘mammal’ had formerly been understood to apply only to land animals, so that its definition included (at least, popularly) the quality of ‘living on the land,’ this part of the connotation was of course lost when the denotation came to include certain aquatic animals.

A proprium is an attribute derived from the definition: being either (a) implied in it, or deducible from it, as ‘having its three angles

equal to two right angles' may be proved from the definition of a triangle; or (b) causally dependent on it, as being 'dangerous to flocks' results from the nature of a wolf, and as 'moving in an ellipse' results from the nature of a planet in its relation to the sun.

An accident is a property accompanying the defining attributes without being deducible from them. The word suggests that such a property is merely 'accidental,' or there 'by chance'; but it only means that we do not understand the connection.

Proprium and Accident bear the same relation to one another as Derivative and Empirical Laws: the predication of a proprium is a derivative law, and the predication of an accident is an empirical law. Both accidents and empirical laws present problems, the solution of which consists in reducing them, respectively, to propria and derivative laws. Thus the colour of animals was once regarded as an accident for which no reason could be given; but now the colour of animals is regarded as an effect of their nature and habits, the chief determinants of it being the advantage of concealment; whilst in other cases, as among brightly coloured insects and snakes, the determinant may be the advantage of advertising their own noxiousness. If such reasoning is sound, colour is a proprium (and if so, it cannot logically be included in a definition; but it is better to be judicious than formal).

If the colour of animals is a proprium, we must recognise a distinction between Inseparable and Separable Propria, according as they do, or do not, always accompany the essence: for mankind is regarded as one species; but each colour, white, black or yellow, is separable from it under different climatic conditions; whilst tigers are everywhere coloured and striped in much the same way; so that we may consider their colouring as inseparable, in spite of exceptional specimens black or white or clouded.

The same distinction may be drawn between accidents. 'Inhabiting Asia' is an Inseparable Accident of tiger, but a Separable Accident of lion. Even the occasional characteristics and occupations of individuals are sometimes called separable accidents of the species; as, of man, being colour-blind, carpentering, or running.

A proprium in the original signification of the term was peculiar to a species, never found with any other, and was therefore convertible with the subject; but this restriction is no longer insisted on.

Section 9. Any predication of a genus, difference or definition, is a verbal, analytic, or essential proposition: and any predication of a proprium or accident, is a real, synthetic, or accidental proposition (chap. v. Section 6). A proposition is called verbal or analytic when the predicate is a part, or the whole, of the meaning of the subject; and the subject being species, a genus or difference is part, and a definition is the whole, of its meaning or connotation. Hence such a proposition has also been called explicative. Again, a proposition is called real or synthetic when the predicate is no part of the meaning of the subject; and, the subject being species, a proprium or accident is no part of its meaning or connotation. Hence such a proposition has been called ampliative.

As to Essential and Accidental, these terms are derived from the doctrine of Realism. Realists maintain that the essence of a thing, or that which makes a thing to be what (or of what kind) it is, also makes everything else of the same kind to be what it is. The essence, they say, is not proper to each thing or separately inherent in it, but is an 'Universal' common to all things of that kind. Some hold that the universal nature of things of any kind is an Idea existing (apart from the things) in the intelligible world, invisible to mortal eye and only accessible to thought; whence the Idea is called a noumenon: that only the Idea is truly real, and that the things (say, trees, bedsteads and cities) which appear to us in sense-perception, and which therefore are called phenomena, only exist by participating in, or imitating, the Idea of each kind of them. The standard of this school bears the legend Universalia ante rem.

But others think that the Universal does not exist apart from particular things, but is their present essence; gives them actuality as individual substances; "informs" them, or is their formal cause, and thus makes them to be what they are of their kind according to the definition: the universal lion is in all lions, and is not merely similar, but identical in all; for thus the Universal Reason thinks

and energises in Nature. This school inscribes upon its banners, Universalia in re.

To define anything, then, is to discover its essence, whether transcendent or immanent; and to predicate the definition, or any part of it (genus or difference), is to enounce an essential proposition. But a proprium, being no part of a definition, though it always goes along with it, does not show what a thing is; nor of course does an accident; so that to predicate either of these is to enounce an accidental proposition.

Another school of Metaphysicians denies the existence of Universal Ideas or Forms; the real things, according to them, are individuals; which, so far as any of them resemble one another, are regarded as forming classes; and the only Universal is the class-name, which is applied universally in the same sense. Hence, they are called Nominalists. The sense in which any name is applied, they say, is derived from a comparison of the individuals, and by abstraction of the properties they have in common; and thus the definition is formed. Universalia post rem is their motto. Some Nominalists, however, hold that, though Universals do not exist in nature, they do in our minds, as Abstract Ideas or Concepts; and that to define a term is to analyse the concept it stands for; whence, these philosophers are called Conceptualists.

Such questions belong to Metaphysics rather than to Logic; and the foregoing is a commonplace account of a subject upon every point of which there is much difference of opinion.

Section 10. The doctrine of the Predicaments, or Categories, is so interwoven with the history of speculation and especially of Logic that, though its vitality is exhausted, it can hardly be passed over unmentioned. The predicaments of Aristotle are the heads of a classification of terms as possible predicates of a particular thing or individual. Hamilton (Logic: Lect. xi.) has given a classification of them; which, if it cannot be found in Aristotle, is an aid to the memory, and may be thrown into a table thus:

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 Substance                                (1)

                      [Quantity           (2)
 [Attribute]—          [Quality           (3)
                      [Relation           (4)

                      [Where             (5)
                      [When              (6)
                      [Action             (7)
[Modes of Relation]- [Passion             (8)
                      [Posture            (9)
                      [Habit             (10)
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Taking a particular thing or individual, as ‘Socrates,’ this is Substance in the proper sense of the word, and can never be a predicate, but is the subject of all predicates. We may assert of him (1) Substance in the secondary sense (species or genus) that he is a man or an animal; (2) Quantity, of such a height or weight; (3) Quality, fair or dark; (4) Relation, shorter or taller than Xanthippe; (5) Where, at Athens; (6) When, two thousand and odd years ago; (7) Action, that he questions or pleads; (8) Passion, that he is answered or condemned; (9) Posture, that he sits or stands; (10) Habit, that he is clothed or armed.

Thus illustrated (Categoriae: c. 4), the predicaments seem to be a list of topics, generally useful for the analysis and description of an individual, but wanting in the scientific qualities of rational arrangement, derivation and limitation. Why are there just these heads, and just so many? It has been suggested that they were determined by grammatical forms: for Substance is expressed by a substantive; Quantity, Quality and Relation are adjectival; Where and When, adverbial; and the remaining four are verbal. It is true that the parts of speech were not systematically discriminated until some years after Aristotle’s time; but, as they existed, they may have unconsciously influenced his selection and arrangement of the predicaments. Where a principle is so obscure one feels glad of any clue to it (cf. Grote’s Aristotle, c. 3, and Zeller’s Aristotle, c. 6). But whatever the origin and original meaning of the predicaments, they were for a long time regarded as a classification of things; and it is in this sense that Mill criticises them (Logic: Bk. I. c. 3).

If, however, the predicaments are heads of a classification of terms predicable, we may expect to find some connection with the predicables; and, in fact, secondary Substances are species and genus; whilst the remaining nine forms are generally accidents. But, again, we may expect some agreement between them and the fundamental forms of predication (ante, chap. i. Section 5, and chap. ii Section 4): Substance, whether as the foundation of attributes, or as genus and species, implies the predication of co-inherence, which is one mode of Co-existence. Quantity is predicated as equality (or inequality) a mode of Likeness; and the other mode of Likeness is involved in the predication of Quality. Relation, indeed, is the abstract of all predication, and ought not to appear in a list along with special forms of itself. 'Where' is position, or Co-existence in space; and 'When' is position in time, or Succession. Action and Passion are the most interesting aspect of Causation. Posture and Habit are complex modes of Co-existence, but too specialised to have any philosophic value. Now, I do not pretend that this is what Aristotle meant and was trying to say: but if Likeness, Co-existence, Succession and Causation are fundamental forms of predication, a good mind analysing the fact of predication is likely to happen upon them in one set of words or another.

By Kant the word 'Category' has been appropriated to the highest forms of judgment, such as Unity, Reality, Substance, and Cause, under which the understanding reduces phenomena to order and thereby constitutes Nature. This change of meaning has not been made without a certain continuity of thought; for forms of judgment are modes of predication. But besides altering the lists of categories and greatly improving it, Kant has brought forward under an old title a doctrine so original and suggestive that it has extensively influenced the subsequent history of Philosophy. At the same time, and probably as a result of the vogue of the Kantian philosophy, the word 'category' has been vulgarised as a synonym for 'class,' just as 'predicament' long ago passed from Scholastic Logic into common use as a synonym for 'plight.' A minister is said to be 'in a predicament,' or to fall under the 'category of impostors.'