

A BRIEF TEXT-
BOOK OF LOGIC

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Militant Thomist Press

PREFACE

These pages are a modest contribution towards the accomplishment of an important purpose. They are written in compliance with an earnest desire repeatedly expressed in the solemn utterances of our venerated Supreme Pontiff Leo XIII. "The more active," he says, "the enemies of religion are to teach the unlearned, the young especially, what clouds their intellect and corrupts their morals, the more should you exert yourselves to establish not only a well-adapted and solid method of instruction, but a method in perfect conformity with the Catholic faith, especially as regards Mental Philosophy, on which the right teaching of all the other sciences in a great measure depends—a Philosophy which shall prepare the way for Divine Revelation instead of aiming at its overthrow."

Thus spoke the Holy Father in his Encyclical "Inscrutabili" at the opening of his Pontificate. What this Philosophy should be, he soon after explained in a special Encyclical "On the Higher Studies." It should be the Philosophy of the Schoolmen, the system founded upon the teachings of Aristotle, which was carried to its perfection by St. Thomas in the thirteenth century, and which has held its place in most of the Catholic Colleges and Universities to the present day. "Among the doctors of the Schools," he says, "St. Thomas stands forth by far the first and master of all.... To this we must add," the Encyclical continues, "that this Angelic Doctor extended the sphere of his philosophic conclusions and speculations to the very reasons and principles of things, opening out the widest field for study, and containing within themselves the germs of an infinity of truths, an exhaustless mine for future

teachers to draw from at the proper time and with rich results. As he used the same intellectual process in refuting error, he succeeded in combating single-handed all the erroneous systems of past ages, and supplied victorious weapons to the champions of truth against the errors which are to crop up in succession to the end of time."

Of this Philosophy there exist many excellent text-books in the Latin, but very few in the English tongue; the present little volume does not attempt to rival their perfection. Its aim is simply: to present to pupils unfamiliar with Latin a brief outline of a sound Philosophy conformable to the teachings of the Schoolmen. It was composed before the excellent Stonyhurst Series of English Manuals of Catholic Philosophy was published; but it is chiefly meant for a different purpose, viz.: for class use in Academies and similar institutions, for which that collection of Manuals is too voluminous, though invaluable as works of reference for professors and pupils. The author sincerely hopes that his modest efforts will contribute to the propagation of sound Philosophic learning.

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DETROIT COLLEGE, August 20, 1891.

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INTRODUCTION

1. **Philosophy** is the science which investigates the highest causes of all things in as far as they are knowable by reason. That portion of Philosophy which terminates in theory or speculative knowledge is called *Theoretical* or *Mental Philosophy*, or *Metaphysics*. That portion which applies first principles to practice, directing the moral conduct of men, is styled *Practical* or *Moral Philosophy*, or *Ethics*.

2. Since reason is to be our guide in all these investigations, we must begin by examining, (*a*) What process our reason must follow that it may guide us with safety, and (*b*) How far our natural powers of mind can give us unerring certainty. This double task is the scope of **Logic**, which science must first be studied, because it is the foundation of the mental and moral structure. It is as truly a part of Philosophy as the foundation is a part of the building.

3. **Human reason and Divine Revelation** are two means by which truth is manifested to man; they cannot contradict one another: as a matter of fact, that which is evident to reason is never found in conflict with Revelation. Hence arises a precious advantage for the Christian philosopher, of which he were foolish not to avail himself. For, knowing that the path of reason, often difficult to trace correctly, must run parallel to the high road of supernatural Revelation, he will be guarded by the clear and infallible teachings of the Faith against the vain pursuit of false theories. Thus, Faith, far from enslaving, liberates his intellect from the shackles of ignorance and error. Philosophy looks not for novelties, nor does it aim at originality of thought, but it studies the eternal and unvarying principles of truth.

4. Among the purely human sciences, Philosophy is the **noblest and most important**; for its final purpose is the most exalted, its process the most intellectual, and its teachings secure the foundation of the other sciences. These receive from it their principles, the laws of their investigations, and the ends or purposes to which they should be directed.

5. **Logic** is the science which directs the mind in the attainment of truth. By a **science** we mean the knowledge of things in connection with their causes. Logic is properly called a science, because it considers not only the rules which direct the mind in the attainment of truth, but also the causes or reasons why they do so.

6. It comprises **two parts**. That portion which considers the modes or forms of mental action, and, in particular, the rules to be observed in reasoning or discussing, is called *Formal Logic* or *Dialectics* (διαλέγομαι, I discuss); that portion which studies the matter or truth attained, criticising the reliability of mental action, is *Material Logic*, also styled *Critical* or *Applied Logic*.

BOOK I

Dialectics

CHAPTER I: SIMPLE APPREHENSIONS AND JUDGMENTS

7. In treating of Dialectics, the **main purpose** of a textbook is to teach pupils how to reason correctly themselves, and readily to detect flaws in the false reasonings of others. To this practical purpose we shall almost exclusively confine ourselves. Setting aside, therefore, all other details usually insisted on in works on Formal Logic, we shall here treat of reasoning only, and of a few such preliminary matters as must be understood before the reasoning process itself can be properly explained. We shall therefore treat, in Chapter I., of *simple apprehensions and judgments*, and, in Chapter II., of *reasoning* itself.

8. We shall consider: 1. *The nature of simple apprehensions*. 2. *The most important distinctions regarding ideas*, and 3. *Judgments*, together with the expression of them in *propositions*.

ARTICLE I. THE NATURE OF SIMPLE APPREHENSIONS

9. **Simple apprehension** is the act of perceiving an object intellectually, without affirming or denying anything concerning it. To *apprehend* is to take hold of a thing as if with the hand; an *apprehension*, as an act of the mind, is an intellectual grasping of an object. The mind cannot take an object physically into itself; but it knows an object by taking it in intellectually, in a manner suited to its own nature, forming to itself an intellectual image,

called a *species* of the object. The act of forming this mental image is called a *conception*, and the fruit of it, the image itself, is the *concept*, *idea*, or *notion* of the object. The word *simple* added to apprehension emphasizes the fact that the apprehension neither affirms nor denies the existence of the object; it affirms nothing and denies nothing, it simply conceives the idea of the object.

10. This intellectual image should not be confounded with the sensible image, or **phantasm**, which is a material representation of material objects, and which is formed by the imagination, by means of the material organ of the brain. The difference between these two images is great, and distinction between them is of vital importance in Philosophy. For instance, I intellectually *conceive* a triangle by apprehending a figure enclosed by three lines and thus having three angles. My notion or idea contains this and nothing more; it is very precise, and every one who conceives a triangle conceives it exactly the same way. But when I *imagine* a triangle, I cannot help imagining it with sensible material accidents, as being of such or such a size and shape, a foot long at one time, a mile long at another. The picture may be vague, various pictures of triangles may be blended together; but it can never be universal, representing all possible triangles, as my idea does. This imagination is a *phantasm*. True, phantasms are often called 'ideas' by English writers; in fact, the whole school of Berkeley, Hume, and their followers fail to trace any difference between them; it is the fundamental error of their pernicious philosophy. Thus, for instance, Huxley maintains that God, the soul of man, etc., are unknowable and unthinkable,[*] because we can form no phantasm of them. This makes them simply unimaginable, not unknowable nor unthinkable; we know what we mean when we speak of them. (On the difference between ideas and phantasms see, further, *Logic*, by Richard Clarke, S.J., c. vi.)

Our ideas are expressed by words, or *oral terms*; the ideas themselves are often called *mental terms*.

ARTICLE II. DISTINCTIONS REGARDING IDEAS

11. Logicians go into much detail on a variety of distinctions with respect to ideas; it will be sufficient for our present purpose briefly to notice a few of them.

A first distinction lies between *abstract* and *concrete* ideas. A **concrete** idea expresses a subject, *e.g.*, 'this gold,' 'some men,' 'all flowers'; or a quality as belonging to a subject, *e.g.*, 'heavy,' 'virtuous,' 'fragrant.' An **abstract** idea expresses a quality by itself, drawn forth, as it were (*abstraho*, I draw away), from the subject to be separately considered, *e.g.*, 'heaviness,' 'virtue,' 'fragrancy.'

12. A second distinction exists between *singular*, *particular*, and *universal* ideas. An idea is **singular** if it expresses a definite single object, *e.g.*, 'this book,' 'that army,' 'that gold,' 'James,' 'the Angel Gabriel,' 'the United States,' meaning this one country.

An idea is **particular** if it represents one or more objects without determining which, *e.g.*, 'a man,' 'an army,' 'a Nero,' 'a spirit,' 'three books,' 'some states.'

An idea is **universal** when it expresses a note or notes common to many objects, found in each of them, no matter how much those objects may differ in other respects; *e.g.*, 'animal' and 'rational' are notes common to all men; they are conceived in the universal idea 'man,' and each of them corresponds to a universal idea. The term *note* designates anything knowable in an object.

13. All universal ideas can be ranked under five heads, called **the five heads of predicables**, because it is always in one of these five ways that a universal idea is predicated of an object.

1. What is apprehended as common to many objects, found in each of them, and therefore predicable of them all in exactly the same sense, may be the whole nature, the essence of those objects, *i.e.*, all that without which those objects cannot exist nor be conceived. For instance, it is the nature or essence of all men to be 'rational animals'; unless I conceive an object as being both 'rational' and 'animal,' I do not conceive a man at all. This common essence of a class is called a *species*. The **species**, therefore, is defined as all that constitutes the common

- nature or essence of a class of objects; *e.g.*, 'man,' 'rational animal.'
2. The universal idea may express a part only of the nature common to many objects. Thus, when I conceive 'animal,' I conceive only a part of man's nature, a part found in other species of objects as well, *viz.*, in brutes. 'Rational' is the other part of man's nature, and it is not found in brutes, but it distinguishes man from the brute. Now, that universal concept which seizes upon what is common to different species is the idea of the **genus**; *e.g.*, 'animal' is the genus, to which belong the two species 'man' and 'brute.'
 3. On the other hand, the universal concept which expresses the peculiar note by which one species differs from another species of the same genus is styled the **specific difference**; *e.g.*, 'rational' is the specific difference of the species man as distinguished from the species brute.
 4. When the concept expresses something that flows or results so necessarily from the very essence that the essence cannot exist without it, and that note never exists but in such an essence, such note is called a **property or attribute** of that essence. Thus, 'the power of laughing,' 'the power to express one's thoughts by articulate speech,' cannot be found but in a being that is both animal and rational, and they result as natural consequences from its compound nature. The use of them may be accidentally impeded, as is that of reason itself in the infant and the idiot; but they belong to human nature as such, as distinct from other natures, and are therefore properties of man, proper or peculiar to man. Properties need not be conceived in order to apprehend the nature from which they flow; thus, to conceive man, I need not think of his risible power.
 5. Lastly, the universal may express what is found in one or many individuals of a class, or even perhaps in all of

them, yet in such a way that it could be absent without the individuals' ceasing to be of the same nature. In that case it expresses an **accident** of the species. For instance, a man may be white or black, tall or small, gentle or fierce, young or old, a European or an American; all these are accidental notes of man. All men are larger than ducks; and yet, if a dwarf should be born, who, when full-grown, should not be so large, being nevertheless a rational animal, he would be truly a man, his particular size being only an accident, not a property of his essence.

14. When we conceive a note common to two or more genera, *e.g.*, 'living,' which note belongs to animals and to plants alike, we have then a **higher genus**, of which the former genera may be considered as the species. 'Body' expresses a still higher genus; for it is predicated not only of living but also of non-living substances, such as stones and metals. 'Substance' itself is the **highest genus**, to which not only bodies but also spirits belong.

Reversing the process, we may start with the highest genus, say 'substance,' and call 'material' and 'immaterial' substances, or 'body' and 'spirit,' its species. The species 'body' becomes next a **subordinate** genus, of which 'living,' or 'organic,' and 'inorganic' will be the two species. Of 'organisms,' as a new subordinate genus, the species will be 'sentient' and 'non-sentient,' 'animals' and 'plants.' Of 'animals' we have two species, 'rational' and 'irrational,' 'man' and 'brute.' We have various species of 'brutes,' but not of 'man'; for, while brutes have very different natures or essences, and, flowing from these, very different properties, all men have the same essence and the same properties; these differ not in kind but in accidental degrees of perfection. Therefore 'man' is not a genus, but the **lowest species**; 'animal' is his proximate or **lowest genus**. The genera and species between the highest and the lowest are called *subaltern*, *subordinate*, or *intermediate*.

15. This ramification of a highest genus into subaltern genera and species is presented to the eye in the **Porphyrian** tree. The

trunk of the tree contains the genera and the species, the branches the specific differences, the top exhibits individuals.

16. In connection with universal ideas we must explain, as matters of the very highest importance in Logic, the *comprehension* and the *extension* of an idea. **Comprehension** means the total signification, all the notes comprehended or contained in an idea; thus, the concept 'man' comprehends the notes 'animal' and 'rational'; 'animal' itself means 'sentient, living, material substance.'

Extension means the total number of individuals to which the idea extends or applies; the extension of the concept 'man' is all men, that of 'animal' is wider still, extending to all men and all brutes. It is thus apparent that *the greater the comprehension of an idea is, the less is its extension, and vice versa*; because the more numerous the qualities apprehended, the fewer the individuals that will possess them all; thus, the genus 'animal' has more extension but less comprehension than the species 'man.' 'Animal' has more extension than 'man,' because there are more animals than men; it has less comprehension, because the term 'animal' signifies fewer notes than 'rational animal' or 'man.'

I.e., substance is corporeal or incorporeal; corporeal substance, called matter or body, is organic or inorganic; an organic body or organism is sentient or insentient, etc.

THE PORPHYRIAN TREE.

When a term is taken in its full or widest extension, it is said to be **distributed**; it denotes then every one of the objects to which it can apply. Thus, when we say 'all men are creatures,' we mean 'every man is a creature.' Terms expressing particular ideas (No. 12) are **undistributed**; *e.g.*, 'gold is found in California'—*i.e.*, 'some gold.'

A distributed term is applied to all its objects in exactly the same meaning or acceptation. Now, many words are capable of two or three different acceptations: 1. When the meaning of a word is exactly the same, the term is called **univocal**; as when we give the name of 'box' to a case or receptacle of any size or

shape. 2. When the meanings are entirely different, without any connection between them, the term is styled **equivocal**; as when the word 'box' is applied, now to a case, then to a blow on the head. 3. When the meanings are different but connected with one another, the term is **analogous**; thus the same word 'box' may stand for a case and for the wood out of which cases used often to be made, the box-tree.

ARTICLE III. JUDGMENTS AND PROPOSITIONS

17. A **judgment** may be defined as *an act of the mind affirming or denying the agreement of two objective ideas*. The mind in judging compares two ideas, and consequently the objects represented by those ideas, and affirms or denies that they agree with one another; *e.g.*, 'modesty is praiseworthy,' 'ebriety is not worthy of man.' If, as in these examples, the agreement or disagreement is seen to exist by the mere consideration or analysis of the ideas compared, the judgment is **analytic**; it is also styled *a priori*, *i.e.*, formed antecedently to experience; or *pure*, *i.e.*, formed by pure reason, not learned by sense-perception; or again, it may be called *necessary*, *absolute*, or *metaphysical*, according to the obvious meanings of those terms. But if the agreement or disagreement is discovered consequently on experience, *e.g.*, 'gold is malleable,' the judgment receives the opposite appellations of **synthetic**, *a posteriori*, *experimental*, *contingent*, *conditional*, and *physical*.

18. If a judgment of either kind is arrived at by reasoning, it is **mediately evident**; if the agreement or disagreement is seen without the aid of reasoning, the judgment is **immediately evident**. That 'ice is cold,' is an immediate *a posteriori* judgment; that 'there is nothing without a reason for it,' is immediately known *a priori*; that 'the sum of the angles of a triangle is equal to two right angles,' is known mediately *a priori*; the physical laws are known mediately *a posteriori*.

19. A judgment expressed in words is called a **proposition**. The subject and predicate together are its **matter**, and the affirmation or negation its **form**; the **copula** is always the verb 'to be' in the

present indicative, expressed or implied: 'I see' is equivalent to 'I am seeing,' 'He said' to 'He is one who said,' etc.

That a proposition be **negative**, it is necessary that a negative word affect the copula. Now, it often requires some reflection to see what word is intended to be affected by the negation: 'No criminal is a happy man' means 'A criminal *is not* a happy man'; 'A tyrant has no peace' means 'A tyrant *is not* one having peace.'

20. In propositions it is of the highest importance for correct reasoning that we carefully attend to the *extension* and the *comprehension* of the terms used and of the ideas for which they stand.

I. If we consider **the extension of the subject**, a proposition is styled *singular, particular, or universal*, according as its subject expresses a singular, particular, or universal idea (No. 12). The form of the term expressing that idea may be misleading, the meaning must be carefully considered. Thus, 'a man is a creature,' 'man is a creature,' 'all men are creatures,' 'every man is a creature,' 'no man is necessary,' are all universal propositions; while 'a man was slain' is particular (for here 'a man' means, not every man, but 'some one man'), and 'that man is generous' is a singular proposition.

II. If we consider **the extension and the comprehension of the predicate**, we have the following rules:

1. *In an affirmative proposition the predicate is taken in its full comprehension, but not (except in definitions) in its full extension.* For instance, 'gold is a metal' means that gold has all the notes constituting a metal, but not that it is every metal. We say 'except in definitions,' for in these the defining words, which are the predicate, must have the same extension as the thing defined, expressed in the subject; *e.g.*, 'man is a rational animal,' *i.e.*, 'any rational animal.'
2. *In a negative proposition the reverse holds true, i.e., the predicate is taken in its full extension, but not in its full comprehension.* For instance, 'a diamond is not a metal'

denies that the diamond is contained in the whole class of metals; but it does not deny that it has qualities in common with metals, since it is a substance, material, lustrous, etc., as well as metals. The extension of the subject determines the **quantity** of a proposition; its **quality** depends on its **form**, *i.e.*, on its being affirmative or negative.

21. In reasoning we must distinguish between *hypothetical* and *categorical* propositions.

The **hypothetical** proposition does not affirm or deny the agreement of subject and predicate absolutely, but dependently on some supposition or condition, or with a possible alternative. It is distinguished from the **categorical**, which directly affirms or denies the agreement between a subject and a predicate without any condition or alternative.

The hypothetical may be of *three kinds*:

(a) The **conditional**, consisting of two parts, one of which is declared to be the condition of the other. The part expressing the condition is called the *condition* or *antecedent*, the other the *conditioned* or *consequent*. If the connection is true, the proposition is true. Thus, 'If you knew God well, you would love him,' is certainly true; 'If you get old, you will be wise,' may be false.

(b) The **disjunctive**, which connects incompatible clauses by the disjunctive particle 'or'; as, 'A being is either created or uncreated.' The proposition is true, if it leaves no alternative unmentioned.

(c) The **conjunctive**, which denies that two things can exist, or hold true, at the same time; as, 'A being cannot be created and independent.'

[*] *Essay on Science and Morals.*

CHAPTER II: REASONING

22. **Reasoning** is the mental act or process of deriving judgments, called conclusions, from other judgments, called premises.

The principle underlying all valid reasoning is that the conclusion is implicitly contained in the premises; therefore whoever grants the truth of the premises thereby really grants the truth of the conclusion. For instance, in this reasoning, "Every good son is pleased to see his mother honored; but Christ is a good Son; therefore He is pleased to see His Mother honored," whoever grants the first two propositions must grant the third, since it is contained in them.

Reasoning is styled *pure*, if the judgments are analytic judgments; *empiric*, if they are synthetic, and *mixed*, if one premise is analytic and the other synthetic. Reasoning expressed in words is called **argumentation**.

ARTICLE I. THE CATEGORICAL SYLLOGISM

23. All argumentation may be reduced to the *categorical syllogism*. A **syllogism** is an argument consisting of three propositions so connected that from the first two the third follows. If all the propositions are categorical, the syllogism is categorical. It will be remembered that a proposition is called **categorical** if it affirms or denies absolutely the agreement of a subject with a predicate. (No. 21.) "All virtues are desirable; but sobriety is a virtue; therefore sobriety is desirable," is a categorical

syllogism. This conclusion, "Sobriety is desirable," is implicitly contained in the first or major premise, "All virtue is desirable"; and the second or minor premise, "Sobriety is a virtue," points out the fact that it is therein contained. Such reasoning is, therefore, perfectly valid.

§ 1. Constructing Syllogisms

24. **To prove a thesis by a syllogism** we begin by finding a proposition which really involves the truth of the thesis, and in a second proposition we state that it does so. Thus, if I am to prove that every one must honor his father and mother, I may start with the premise, "Every one must do what God commands"; I add the minor premise, "But God commands to honor father and mother." Hence I legitimately draw the conclusion, "Therefore every one must honor his father and mother."

25. We must next examine in what ways premises may contain conclusions. **If the major is a universal proposition, it may contain the conclusion in four different ways:**

1. The proposition being universal, the subject is distributed or taken in its widest extension; thus, "Every stone is matter," means that the predicate 'matter' applies to everything that is a 'stone.' If, therefore, the minor states that something, say 'marble,' is a stone, the conclusion will follow that marble is matter. Thus *the major affirms that a predicate belongs to a whole class; the minor affirms that a certain thing is of that class; the conclusion affirms that the same predicate belongs to that certain thing.*
2. Similarly, if the major is negative, as, "A stone is not a spirit," and the minor declares that "Marble is a stone of some kind," the conclusion will be that "Marble is not a spirit." That is: *the major denies a predicate of a whole class; the minor affirms that a certain being is of that class; the conclusion denies that same predicate of that same being.*
3. A third form reasons thus: *The major denies a predicate of*

a whole class; the minor affirms that a certain being has that predicate; the conclusion denies that said being is of said class; for if it were of that class, it would not have that predicate. Thus, "A stone is not a spirit; but an Angel is a spirit; therefore an Angel is not a stone."

4. In the three cases just explained the minor is affirmative. A fourth form of syllogism arises if *the major affirms some predicate of a whole class, and the minor denies that a certain being has that predicate; the conclusion will then be that said being does not belong to said class; since all the individuals of that class have been affirmed to possess that predicate. "Every stone is matter; an Angel is not matter; therefore an Angel is not a stone."*

In these four forms the major is a universal proposition, and the reasoning is founded upon the wide extension of the subject. The major need not be universal in the **fifth form**, which derives its validity from the full **comprehension of the predicate**.

5. The fifth form reasons thus: *The major affirms that a being has a certain predicate, i.e., that it has all the notes comprehended in that predicate; the minor affirms that a certain note is comprehended in that predicate; the conclusion affirms that said being has said note. Thus, "This stone is matter; but all matter is extended; therefore this stone is extended."* By changing the order of the premises, this fifth form is reducible to the first.

26. The **first and second of these five forms** are the most obvious modes of argumentation and the most constantly used. The reasoning so familiar in Mathematics, $A=B, B=C, \therefore A=C$, is an application of the first form. The argument, if expressed in full, would read thus: "Any two things equal to a third thing are equal to each other; but A and C are equal to a third, B; therefore they are equal to each other." Similarly, from the second form we have the following reasoning: "Two things, one of which is equal to a third thing and the other unequal, are not equal to each other; but A is

equal to B, and C is not equal to B; therefore A is not equal to C.

27. In these two special modes of reasoning the major propositions are usually suppressed, because they are so obvious; and the arguments assume an **abridged form**, so constantly in use and so practically useful, that we must explain it with special care. In fact, many logicians reduce all syllogisms to these two abridged forms, which they call the *affirmative* and the *negative syllogism*.

28. The **affirmative syllogism**, *i.e.*, that in which both the premises are affirmative, is based on the principle that *two things equal to a third are equal to each other*: $A=B, B=C$; therefore $A=C$

The **negative syllogism**, *i.e.*, that in which one premise is negative, is based on the principle that *two things, one of which is equal and the other unequal to a third, are unequal to each other*: $A=B, B$ is not equal to C; therefore A is not equal to C.

29. The purpose of comparing A with B, and B with C, in the premises is to bring A and C together in the conclusion, as equal or unequal to each other. A and C are to be brought together; they are therefore called the **extreme terms**, and B, which brings them together, is **the middle term**. The subject of the conclusion is styled the *minor extreme*; its predicate, the *major extreme*. The premise containing the major extreme is the *major premise*, and that containing the minor extreme is the *minor premise*; still, practically the first expressed is usually called the major, and the second the minor premise. All the propositions together are the **matter** of the syllogism; the proper connection between them is its **form** or **sequence**, a term not to be confounded with consequent or conclusion.

30. **A syllogism is valid** when both the matter and the form are without a flaw. The following is materially true, formally false: "All virtue is good; intemperance is not a virtue; therefore intemperance is not good." The following is materially false, formally true: "Gloomy things are hateful; but virtue is a gloomy thing; therefore virtue is hateful."[*]

§ 2. Criticising Syllogisms

31. In the mathematical formula, $A=B, B=C, \therefore A=C$, there is no danger of error; but when we substitute ideas for the letters, there is need of great care to avoid mistakes. Thus, suppose that for A I substitute "silver," for B "a certain metal," for C "yellow," and instead of the formulas, $A=B, B=C, \therefore A=C$ I write: "Silver is a certain metal; but a certain metal is yellow; therefore silver is yellow," the conclusion is not legitimate; for 'a certain metal' is taken in two different significations, and consequently 'silver' and 'yellow' are not compared to one thing, but to different things. To avoid and to discover errors in syllogistic reasoning, the following **eight rules** must be applied:

1. The terms are only three, to this attend;
2. Nor let the consequent a term extend.
3. Conclusions ne'er the middle term admit;
4. At least one premise must distribute it.
5. Two negatives no consequent can show,
6. From affirmations no negations flow.
7. A universal premise you'll provide,
8. And let conclusions take the weaker side.

32. *Rule 1. The terms are only three, to this attend.* There must be three terms, representing three ideas, and only three terms and ideas; this is the most important rule of all: it virtually contains most of the other rules. We evidently need three terms, that two things may be compared with a third; and, as each term must occur twice, there is no room for a fourth term. This rule is often violated by using one of the terms in two different meanings, especially the middle term; as:

Chewing is a bad habit;
But *chewing* is necessary to man;
Therefore a bad habit is necessary to man.

Rule 2. Nor let the consequent a term extend. Let no term have a wider meaning in the conclusion than in the premises; else there would really be more in the conclusion than is contained in the premises; as:

You are not what I am;
I am a *man*;
Therefore you are not a *man*.

'A man' is distributed in the consequent; for it stands for 'any man at all,' 'you are not any man at all'; but 'man' is particular in the minor; it means 'a certain man,' 'some man.'

Rule 3. Conclusions ne'er the middle term admit. This rule is evident, as the conclusion has nothing to do but to compare the extremes. We could not argue:

Lincoln was President;
Lincoln was of Illinois;
Therefore *Lincoln* was President of Illinois.

Rule 4. At least one premise must distribute it. The middle term must be used in its widest meaning in at least one of the premises. If the middle term were taken twice in a particular meaning, it might denote different objects; as:

Some monks were very learned;
Luther was a *monk*;
Therefore Luther was very learned.

Notice that a *singular term* is taken in its widest meaning, as 'Cicero,' 'Columbus,' 'the Eternal City,' etc.; e.g., "Columbus discovered America; but Columbus was disgraced; therefore the discoverer of America was disgraced."

Rule 5. Two negatives no consequent can show. From the fact that two things are not equal to a third, it does not follow that they are equal to each other, nor that they are unequal.

Rule 6. From affirmations no negations flow. If the two premises are affirmative, they declare that two things are equal to a third; whence it follows that they are equal, not unequal, to each other.

Rule 7. A universal premise you'll provide. If both premises are particular, no conclusion will follow. For their subjects are particular (No. 20), and if both are affirmative, their predicates are particular (No. 20); thus all their terms are particular, and the middle term is not distributed as it should be by Rule 4. If one is negative, its predicate is distributed (No. 20), but that

is not enough; we need then two universal terms, one for the middle term and one for the predicate of the conclusion. For that conclusion will be negative (Rule 8), and therefore must have a universal predicate (No. 20). We cannot reason thus:

Some Inquisitors were cruel;
Some good men were Inquisitors;
Therefore some good men were cruel.

Rule 8. And let conclusions take the weaker side. The meaning is that, if one of the premises is negative, the conclusion is negative; if one is particular, the conclusion is particular. The first assertion is evident: it regards the negative syllogism explained above (No. 28). As to the second, if one premise is particular, two cases may occur: 1. If both are affirmative, they can contain only one distributed term, since one subject and both predicates are particular. The distributed term must, of course, be their middle term, for the middle term must be at least once distributed; and therefore the subject of the conclusion must be particular. 2. If one premise is negative, there may be two distributed terms in the premises, viz., the subject of the universal proposition, and the predicate of the negative—one of these is needed for the middle term, and one for the predicate of the negative conclusion; thus the subject of the conclusion will again be particular.*]

33. These same rules apply to all syllogisms having categorical premises, even though the premises be **compound** propositions. The rules may seem at first sight to be violated, but they will be found, on careful inspection, to be observed in all correct reasoning of this kind. Attend especially to that part of the compound premises in which the stress of the argument lies. Thus, when we say, "God alone is *eternal*, but Angels are not God; therefore they are not *eternal*," the term 'eternal' is distributed in the conclusion, while it seems to be the predicate of an affirmative proposition in the major premise. But the major is compound, and contains a negative part, "Whatever is not God is not eternal." Hence the rule is not violated.

ARTICLE II. THE HYPOTHETICAL SYLLOGISM

34. A **hypothetical syllogism** is one whose major is a hypothetical proposition (No. 21); and such it always is when the syllogism is not categorical. We have seen that there are three kinds of hypothetical propositions: the *conditional*, the *disjunctive*, and the *conjunctive*. Hence there are three species of hypothetical syllogisms.

35. I. **Conditional** syllogisms derive their force from an affirmed connection between a condition and a consequent; so that, if a certain condition is verified, a certain consequent must be admitted. Therefore, if the consequent does not exist, the condition is thereby known not to be verified. Hence this argument may validly conclude in two ways: 1. *Affirmatively: The condition being affirmed, the consequent must be affirmed*; but not *vice versa*. Thus we say rightly:

"If the sun shines, it is day;
But the sun shines;
Therefore it is day."

But if the minor were "It is day," it would not follow that the sun shines. Or, 2. *Negatively: The consequent being denied, the condition must be denied*; but not *vice versa*.

"If the sun shines, it is day;
But it is not day;
Therefore the sun does not shine."

If the minor were "The sun does not shine," it would not follow that it is not day.

These and all other conditional syllogisms can be reduced to the categorical form. For instance, we can reason thus:

"All times of sunshine are day;
But this is a time of sunshine;
Therefore it is day."

36. II. The **disjunctive** syllogism has a disjunctive major premise; e.g., "Either the father, or the mother, or the child is the natural head of the family." It is supposed that the disjunction is complete, *i.e.*, that no fourth alternative is possible. From this

major we may reason in three ways:

1. *The minor may deny one member of the disjunction, and the conclusion affirm the other members disjunctively.*

“But the child is not the natural head of the family;
Therefore either the father or the mother is such.”

2. *The minor may affirm one of the members, the conclusion deny the other members copulatively:*

“But the father is the natural head;
Therefore neither the mother nor the child is such.”

3. *The minor may deny all the members but one, the conclusion affirm that one:*

“But the mother and the child are not;
Therefore the father is.”

37. III. The **conjunctive** syllogism has a conjunctive major premise; as: “No one can love God and hate his neighbor.” From this premise we can reason validly by affirming one of the incompatible predicates in the minor, and denying the other in the conclusion: “But the Martyrs loved God; therefore they did not hate their neighbor,” or “But Nero hated his neighbor, therefore he did not love God.”

ARTICLE III. OTHER SPECIES OF DEMONSTRATIVE ARGUMENTS

38. 1. The **Enthymeme**, as now usually understood,[*] is an elliptical syllogism, one of the premises being understood (ἐν θυμῷ, in the mind); e.g., “The world displays a wonderful adaptation of means to an end; therefore it is the work of an intelligent Maker.” The major is understood, viz., “Whatever displays a wonderful adaptation of means to an end is the work of an intelligent maker.” To **criticise** the validity of an enthymeme we have only to supply the omitted premise, and then apply the ordinary rules of the syllogism.

39. 2. The **sorites** (σωρός, a heap) is an abridged series of syllogisms; it is an argument consisting of more than three propositions so connected that the predicate of the first becomes

the subject of the second, the predicate of the second the subject of the third, etc., till the conclusion joins the subject of the first with the predicate of the last premise. “Man is accountable; whoever is accountable is free; whoever is free is intelligent; whoever is intelligent cannot be mere matter; therefore man cannot be mere matter.”

40. **To test such reasoning**, it should be resolved into connected syllogisms, thus:

“Whoever is accountable is free; but man is accountable; therefore man is free.”

“Whoever is free is intelligent; but man is free; therefore man is intelligent.”

“Whoever is intelligent cannot be mere matter; but man is intelligent; therefore man cannot be mere matter.”

41. 3. The **dilemma** (δις-λήμμα, a twofold assumption) is an argument which offers an adversary the choice between two or more alternatives, from each of which a conclusion is drawn against his position. The alternatives are called the *horns* of the dilemma. Such was the reasoning of one whom a Protestant parent was preventing from becoming a Catholic. He answered: “Either Protestantism or Catholicity is right. If Protestantism is right, every one must be guided by his own judgment in religious matters, and you should not prevent me from judging for myself. If Catholicity is right, you ought not only not to prevent me, but even to follow my example.”

42. To be **conclusive**, the dilemma must leave no escape from the alternatives presented; thus, the dilemma just quoted would not be conclusive against a Pagan; for he would deny the major. Besides, the partial inferences must follow strictly from their respective premises; else the argument may often be retorted. A young man, striving to dissuade his sister from devoting herself to the exclusive pursuit of holiness, argued thus: “Either you have still a long or but a short life before you: if a long life, you will forego countless pleasures; if a short life, you cannot get far on the path of holiness.” She retorted: “If a short life, I shall forego few pleasures; if a long one, I can get far on the path of holiness.”

43. 4. When proofs of the premises or of one of them are inserted in a syllogism, the argument is called an **epichirema** (ἐπί χεῖρ, at hand, ready for use), which is rather an oratorical form of the syllogism than a distinct species of reasoning; *e.g.*, "Education should promote morality; but it fails to do so when severed from religious teachings, since morality derives all its force from religious convictions; therefore education should be religious."

44. 5. **Induction** requires careful consideration, on account of its constant application to the Physical Sciences. It follows a process the reverse of the syllogistic; for it argues not from universals to particulars, but from particulars to universals. It may be defined as an argument in which we conclude that what is found by experience to hold true of single objects of a class holds true of the whole class. Induction may be *complete* or *incomplete*.

45. **Complete induction** examines every single object of a class, and then enunciates universally that all the class has certain properties; for instance, after exploring every zone of the earth, we may conclude, "All the zones of the earth's surface are capable of supporting human life." Complete induction rests for its validity on this **sylogism**: "Whatever is true of every individual of a class is true of the whole class; but a certain proposition is true of every individual of a class; therefore it may be predicated of the whole class."

46. **Incomplete induction**, the ordinary process of Physical studies, does not examine every single object of a class, but a sufficient number of such objects, and under sufficiently varied circumstances, to make it certain that the property or action observed cannot be owing to any accidental cause, but must be due to the very nature of the objects, and therefore must always accompany them, even in such cases as have not been examined. As long as any doubt remains whether, perhaps, the peculiarity constantly observed may not be owing to some accidental circumstances, induction cannot give truly scientific certainty; but when all such doubt is excluded, the argument is conclusive. It rests then upon this clear **sylogistic reasoning**: "Whatever property or action flows from the very nature of

objects must always accompany those objects; but a certain property or action is known by a sufficient variety of experiments to flow from the very nature of certain objects; therefore it must always accompany them." For instance, heavy bodies when left unsupported have been found in most varied circumstances to fall to the earth, and therefore we judge without fear of error that this tendency must be due to their very nature, and we formulate the natural law: "Heavy bodies when unsupported fall to the earth."

47. The only **danger** is that scientists, in their eagerness to formulate general laws, will not always examine a sufficient variety of cases to exclude all doubt as to the real cause of the phenomena observed. Thus, Laplace laid it down as a natural law that all the parts of the solar system revolve from west to east; while it is now known that some of the solar planets and their satellites perform motions in the opposite direction.

48. It is evident that no conclusion is **valid**, except in as far as it is contained in the premises from which it is derived. Therefore the fact that an assertion is found to hold in ninety-nine cases is no certain proof that it will hold true in the hundredth case, since this hundredth case is not contained in the cases observed. Incomplete induction, therefore, cannot by itself, without resting on a syllogism, furnish a scientific proof. But we have scientific proofs of many things. Hence it is evident that Materialists and Positivists (*i.e.*, those pretended philosophers who admit nothing but matter and sensible phenomena) are entirely mistaken when they teach that the mind has no knowledge of any universal propositions whatever, except as far as it has observed and generalized individual facts; that all reasoning, therefore, is only the generalizing of facts, or that all the elements of our knowledge are only inductive, without any universal proposition on which their certainty rests. Some of these philosophers maintain that we do not even know that a circle must be round, but only that it is always known to be so on this earth, while elsewhere it may, for all we know, be square. But the proposition, "A circle is round," is self-evident, independently of observation and induction. A system is known to be false if it leads logically to absurd consequences, as

their system does.

ARTICLE IV. PROBABLE REASONING

49. In all the forms of argumentation so far explained, the process is every way reliable and the conclusion certain; such reasoning is called **demonstrative**; to distinguish it from **probable** reasoning, which fails to remove all prudent fear of error.

A syllogism one or both of whose premises are only probable will, of course, yield only a probable conclusion; it is called **dialectic**, *i.e.*, open to discussion (διαλέγομαι, I discuss). We shall here consider two important species of probable arguments, *Analogy* and *Hypothesis*, both of frequent application, chiefly in the Physical Sciences.

50. I. **Analogy** (ἀνάλογος, parallel reasoning) is an argument by which we conclude that a certain line of reasoning will hold in one case because it is known to hold in a similar case. Thus, because we see that the actions of brutes are to a great extent similar to those of men, and in men they are prompted by certain feelings, we conclude, with very strong probability, that in brutes also they are prompted by similar feelings.

51. **The principles underlying analogical reasonings** are such as these: "Similar causes are apt to produce similar effects," "Similar properties suggest similar essences," "Things similarly constructed appear to be governed by similar laws," etc. Sometimes the probability thus obtained is very strong; at other times the argument is deceptive, because, though alike in many other ways, the two cases may differ on the very point in question. Such are many of the analogies urged in support of the Evolution of Species. "The vile grub is evolved into a beautiful butterfly; why may not a hawk be developed into an eagle?" asks the popular scientist. But from the egg of the butterfly comes the vile grub again, and the species remains ever the same. Varieties of type within the same species of animals are numberless, but no single case of an evolution from one species into another has ever been scientifically established.

52. The argument of analogy is more **useful** to the orator than to the philosopher. It supplies the former with the topics of Similitude and Example. It suggests much effective reasoning *a majori, a minori, and a pari*.

In scientific investigations analogy is often suggestive of solutions, which may afterwards be proved demonstratively to be correct; till they are so proved, they are called *hypotheses*.

53. II. An **hypothesis** (ὑπόθεσις, a supposition) is a proposition provisionally assumed as if true, because it accounts plausibly for many facts. For instance, it was formerly supposed that light consisted of particles emitted by luminous bodies; the present hypothesis explains the phenomena of light more plausibly by the vibrations or undulations of ether. When an hypothesis is so far confirmed by experience that it leaves no reasonable doubt as to its correctness, it ceases to be an hypothesis and becomes a *thesis*.

That an hypothesis may be probable and truly **scientific**, it is necessary: 1. That it explain a considerable portion of the facts in question. 2. That it do not certainly contradict any well-established truth; for, as two contradictories cannot both be true, whatever hypothesis contravenes a well-established truth is thereby known to be false. Numerous important discoveries have been made, especially in the Physical Sciences, by means of ingenious hypotheses. On the other hand, science has often been much retarded by false hypotheses, which led investigations into wrong directions. To point out such false assumptions is to render most important services to the cause of progress. For one Copernican theory retarded a while till supported by stronger proofs, numerous wild vagaries have been discountenanced by the Roman tribunals, and the energies of the learned diverted from wasting themselves in the pursuit of idle fancies.

ARTICLE V. INDIRECT REASONING

54. Reasoning, whether demonstrative or probable, is styled **indirect** when, instead of proving the thesis, it simply aims at clearing away objections against it, or at establishing some other

proposition from which the truth of the thesis may be inferred. Indirect reasoning may assume various forms:

1. The **self-contradiction**, or *reductio ad absurdum*, is a form of argument showing that the denial of the theses leads to absurd consequences; thus we argue the necessity of admitting certainty from the fact that the denial of all certainty leads a man to stultify himself.
 2. The **negative argument** points out the absence of all proof from an opponent's assertions. "Mere assertions go for nothing," "*Quod gratis asseritur gratis negatur*," are received axioms of discussion.
 3. The **instance** or **example** adduces a test case in which the assertion or the reasoning of an opponent is shown to be at fault. Thus, if one asserted that all history is unreliable, we might instance our Declaration of Independence as an undeniable fact of history.
 4. An **argumentum ad hominem** draws from an opponent's principles, true or false, a conclusion against him; *e.g.*, when a Fatalist philosopher was about to flog his slave for the crime of theft, the latter argued that he could not be justly punished for a crime which he was *fated* to commit.
 5. A **retort** turns an adversary's argument or some portion of it against himself; as when the same philosopher answered that he likewise was *fated* to flog the slave.
 6. We **evade** an argument when, without discussing his proofs, we call on an adversary to explain what he is unwilling or unable to explain; thus many a specious theorizer is silenced by summoning him to explain the consequences of his theories.
 7. The argument **ad ignorantiam** shows that an opponent is unable to prove his point or answer our objections.
 8. The argument **ad invidiam** makes an adversary's thesis or his proofs odious or ridiculous.
55. In **answering objections** we should attend with special care

to distinguish what is true from what is false in the arguments of our opponents.

Most objections contain some element of truth; for falsity, as such, is not plausible: it is the truth blended with falsity that gives plausibility to an objection. To separate the one from the other, by drawing clear lines of demarcation, is the keenest test of logical skill, and the direct road to complete victory. To facilitate for the student this task of neatly distinguishing the true from the false, we shall now point out the chief forms which fallacious arguments are apt to assume.

ARTICLE VI. SOPHISMS OR FALLACIES

56. A **sophism** or **fallacy** is an argument which, under the specious appearance of truth, leads to a false conclusion. The deception is caused either by some *ambiguity in the expression*, or by some *confusion in the thoughts expressed*.

57. 1. The fallacies arising from **ambiguity in the expression** are chiefly two:

1. The **equivocation**, or **ambiguous middle**, uses a middle term in two different meanings; *e.g.*, "The soul is immortal; but a brute animal has a soul; therefore a brute animal has something immortal." We answer by distinguishing the two meanings of the word 'soul.' In the major it denotes the human soul, in the minor the principle of life in any animal: there are four terms.
2. The fallacy of **composition and division** confounds what holds of things separate with what holds of them united; *e.g.*, "It is absolutely impossible that the dead should live" is true in the sense that they cannot live and be dead at the same time, *i.e.*, in the sense of *composition*; but it is not true in the sense of *division*: those now dead can, by the power of God, be made to live again.

58. II. Fallacies result from **confusion of thought** in six ways, chiefly:

1. The fallacy of the **accident** confounds an essential with an accidental property; *e.g.*, “We buy raw meat, and we eat what we buy; therefore we eat raw meat.” What we eat has the same essence as what we buy, but not the same accident of rawness.
2. What is true in the proper sense of the word, ‘*simpliciter*,’ is often confounded with what is true in a qualified sense or **under a certain respect** (*secundum quid*); *e.g.*, “A sea-captain who willingly throws his cargo overboard ought to indemnify the owner; but A did so; hence A ought to indemnify the owner.” The major would be true, if the captain were absolutely willing to destroy the cargo entrusted to him; but not if he is willing in a way only, *i.e.*, as a necessary means to save vessel and crew.
3. An **irrelevant conclusion**, *ignoratio elenchi*, or *missing the point*, proves what is not in question, refutes what is not objected; as when Evolutionists prove elaborately that the body of man resembles in various ways the bodies of brutes—a fact which no sensible man denies.
4. The *petitio principii*, or **begging the question**, consists in taking for granted the point which is to be proved; when this very point is used as a premise in the reasoning, the fallacy is called a **vicious circle**.
5. The fallacy of the **false consequence**, often called a *non-sequitur*, or want of sequence, is used when a conclusion is drawn which is not contained in the premises; *e.g.*, “There exists a wonderful gradation in the perfection of plants and animals; therefore the more perfect are evolved from the less perfect.”
6. The **undue assumption**, or false cause, *non causa pro causa*, assumes as a cause what is not a cause; as when the Reformation is assumed to be the cause of scientific progress. This fallacy often arises from the fact that mere priority in time is mistaken for causality; *post hoc; ergo propter hoc*.[*]

ARTICLE VII. METHOD IN REASONING

59. **Order** is a proper arrangement of parts for any purpose whatever, theoretical or practical; **method** is a suitable arrangement of parts with a view to a practical end. In reasoning, the end is the acquisition or the communication of knowledge.

60. All reasoning must **begin with undoubted premises**, which themselves need not to be supported by reasoning: no science is expected to prove its first principles. Thus, Geometry starts out with a number of axioms, from which the whole science is derived by logical reasoning. Such axioms are not blindly or arbitrarily taken for granted; but they are self-evident, they need no proof. Thus, too, in Philosophy the first principles are self-evident and need no proof.

61. As the mind must, of course, apprehend the premises before it draws conclusions from them, we say that in the **logical order**, *i.e.*, in the order of thought, the premises are always prior to the conclusions. But in the **ontological order**, *i.e.*, in the order of being, a truth stated in the premises may be really posterior to the truth expressed in the conclusion. Such is the case whenever we reason from an effect to its cause, say from a beautiful picture to the skill of the painter; for the effect is posterior to the cause, is dependent on the cause.

62. Reasoning thus from effect to cause is reasoning **a posteriori**, and, *vice versa*, reasoning from cause to effect is called **a priori**, since causes are ontologically prior to their effects.

63. It will be noticed that the terms *a priori* and *a posteriori* have not exactly the same meaning when applied to reasoning and when applied to judgments. A **judgment a priori**, as explained above (No. 17), is one formed independently of experience, while a **reasoning a priori** is one proceeding from a cause to its effect.

64. While in *a priori* and *a posteriori* reasonings we consider relations between two things, one of which is ontologically prior to the other, in **analytical** and **synthetical** reasonings we consider only one thing, studying the relations between the whole being

and its parts, between a substance and its qualities. If we are first acquainted with the whole being and from the study of it strive to discover its parts, we are said to analyze the subject (ἀναλυω, I take apart): we then proceed analytically. But if we know the parts first, and put them together to find the whole, we proceed synthetically (σύνθεσις, a putting together). The chemist analyzes a mineral to discover its simple ingredients; the apothecary combines simples into compounds. The synthetic geometrician puts together lines and angles to find the properties of surfaces and solids; while the analytical geometrician finds the particular mathematical relations implied in a general formula.

65. The metaphysician considers **an idea as a whole**, and the **notes of it as its parts**. For instance, knowing that an oak is a tree, he examines the notes involved in the concept 'tree,' and finds analytically that an oak is a substance, material, vegetable, etc. On the other hand, seeing that the human body is a substance, extended, living, sensitive, he concludes synthetically that it is of an animal nature. Now, it is obvious that the idea analyzed is less extended than the notes; *e.g.*, 'tree' is less extensive than 'substance,' for every tree is a substance, but not every substance is a tree. Therefore, when we reason analytically, we proceed *from the particular to the universal*, and *vice versa* we reason synthetically *from the universal to the particular*.

66. A science may use either **analysis or synthesis**, or now the one and then the other. Thus, in this treatise on Dialectics, while first explaining ideas, next the union of ideas into judgments, then the combination of judgments into arguments, we have used synthesis; and, in analyzing the nature of reasoning to discover the rules that must guide it, we have used analysis. This latter process is, in most studies, better suited for the investigation of truth, synthesis for the imparting of truth to others.

67. While treating of scientific methods, it is proper to speak of the **distinctions existing between various sciences**. These are distinguished according to their objects; thus, Astronomy is evidently distinct from Botany, because it treats of a different class of objects. When sciences treat of the same object, as do Geology,

Geometry, and Geography, all of which study the earth, they view that object differently; and the view they take of their objects is called their *formal object*, the object itself being called the *material object*. Sciences are therefore more correctly said to be **specified by their formal objects**. It naturally follows that a science is esteemed as more or less noble in proportion as its formal object is more or less worthy of man. Theology is therefore the noblest of all, since it views all its objects as they are known by the highest light, *viz.*, by the supernatural light of Divine Revelation. Philosophy is the noblest of the merely human sciences, since its formal object is what is most intellectual in all things, *viz.*, their very essences and their relations to the highest good.

68. The true teachings of any science can never come into **conflict** with the true teachings of any other science; for truth objectively considered is something absolute, not merely relative; it is *that which is*. In the case of an apparent conflict between two sciences, it will always be found that one of the conflicting teachings is not demonstrated nor capable of demonstration.

ARTICLE VIII. EXERCISE IN REASONING

69. The most useful exercise in philosophic studies is the manner of discussion called **The Circle**. We shall here explain it at some length:

One pupil is appointed to defend on a given day, during about half an hour, any thesis that has been explained in the class; two others are appointed to object; and the whole discussion is to be conducted in strict syllogistic form. The discussion is opened by the first objector, who challenges the defender to prove the thesis. The latter begins by explaining the exact meaning of the thesis; he next gives the proof in a formal syllogism, adding, if necessary, the proof of the major or the minor, or both. The objector then attacks the thesis or its demonstration: he offers a syllogism the conclusion of which is contradictory to the thesis or to the validity of the proof. The defender repeats the objection in the very words of the opponent; next, he replies separately to each of

its propositions.

Let us suppose that the third thesis of *Critical Logic*—the **theory of universal scepticism is self-contradictory** (No. 94)—is the subject of discussion. The defender, at the summons of the first objector, explains and proves the thesis. Then the first *objector*: “That is not self-contradictory which does not affirm and deny the same thing; but the theory of universal scepticism does not affirm and deny the same thing; therefore it is not self-contradictory.” The *defender* repeats the objection word for word, and then adds: “The major, ‘That is not self-contradictory which does not affirm and deny the same thing,’ I grant. The minor, ‘The theory of universal scepticism does not affirm and deny the same thing,’ I deny.” *Objector*: “I prove the minor: that does not affirm and deny the same thing which affirms nothing whatever; but the theory of universal scepticism affirms nothing whatever; therefore it does not affirm and deny the same thing.” The *defender* repeats the syllogism, and adds: “The major, ‘That does not affirm and deny the same thing which affirms nothing whatever,’ I grant. The minor, ‘The theory of universal scepticism affirms nothing whatever,’ I deny.” *Objector*: “I prove my new minor: the theory which doubts of everything affirms nothing whatever; but the theory of universal scepticism doubts of everything; therefore it affirms nothing whatever.” *Defender*, after repeating the syllogism, adds: “The major, ‘The theory which doubts of everything affirms nothing whatever,’ let that pass. The minor, ‘The theory of universal scepticism doubts of everything,’ I deny.” *Objector*: “I prove the last minor: universal scepticism is defined as the theory which doubts of everything; therefore universal scepticism doubts of everything.” *Defender* repeats the enthymeme, and adds: “The antecedent, ‘Universal scepticism is defined as the theory which doubts of everything,’ I distinguish: as the theory which pretends to doubt of everything, I grant; as the theory which really doubts of everything, I deny; and therefore I deny the consequent.” *Objector*: “But the sceptic really doubts of everything; therefore the distinction is of no avail.” *Defender* repeats, and adds: “The antecedent, ‘The sceptic really

doubts of everything,’ I deny.” *Objector*: “May I ask your reason for denying it?” *Defender*: “I deny it because no man can really doubt of everything; even his own existence; the fact that he is reasoning, speaking, etc.” *Objector*: “But the sceptic sincerely affirms that he doubts of everything.” *Defender*: “Then he affirms something, and thereby contradicts himself.”

The Second Objector: “That should not be maintained as a thesis which cannot be validly proved; but it cannot be validly proved that universal scepticism is an absurd theory; therefore it should not be maintained as a thesis.” The *defender* repeats, then adds: “The major, ‘That should not be maintained as a thesis which cannot be validly proved,’ I will let that pass for the present. The minor, ‘It cannot be validly proved that universal scepticism is an absurd theory,’ I deny, and therefore I deny the conclusion.” *Objector*: “I prove the minor: that proof is not valid which takes for granted what cannot be proved; but the proof of this thesis does so; therefore it is not valid.” *Defender* repeats, and adds: “ ‘That proof is not valid which takes for granted what cannot be proved,’ I distinguish that major: if that which is taken for granted needs proof, I grant; if it needs no proof, I deny. As to the minor: ‘But the proof of this thesis takes for granted what cannot be proved,’ I distinguish this the same way: it takes for granted what is evident, and therefore needs no proof, I grant; it takes for granted that which needs proof, I deny. And therefore I deny the conclusion, etc., etc.”

[*] **Exercises** like the following will be found to be of great advantage: Construct syllogisms proving the following theses: The Saints deserve to be honored, No man is to be hated by his fellow-man, Theft should be punished, Good books are valuable treasures, Bad books are injurious, Riches are not lasting possessions, The study of music should be encouraged, Jealousy cannot please God. No time is unless.

[*] **Exercise.** Criticise the following syllogisms:

1. “The beings conjured up by spiritists are spirits;
But the souls of the dead are spirits;

Therefore the beings conjured up by spiritists are the souls of the dead.”

2. “Blessed are the poor in spirit;
The Apostles are blessed;
Therefore the Apostles are poor in spirit.”
3. “Scientists deal with physical laws;
But Huxley and Darwin are scientists;
Therefore they deal with nothing but physical laws.”
4. “Monopolists are rich;
Some rich men are proud;
Therefore monopolists are proud.”
5. “Many men are rich:
Many men oppress the poor;
Therefore the rich oppress the poor.”
6. “The free-traders wish to reduce the tariff;
Mr. C. wishes to reduce the tariff:
Therefore Mr. C. is a free-trader.”

[*] The word was differently derived and explained by Aristotle.

[*] **Exercise.** Point out the fallacies contained in the following arguments:

1. “Liberty is desirable; but the laws restrict liberty; therefore the laws restrict what is desirable.”
2. “The liberty of the press is a blessing; but blessings should not be restricted; therefore the liberty of the press should not be restricted.”
3. “The Inquisition was the cause of much cruelty; but the Popes approved the Inquisition; therefore the Popes approved the cause of much cruelty.”
4. “The Spanish Inquisitors were often cruel; but St. Peter Arbues was a Spanish Inquisitor; therefore the Saints are often cruel.”
5. “Galileo was condemned by a Roman tribunal; therefore the Pope is not infallible.”
6. “The Supreme Court of the United States is a fallible tribunal; therefore its decisions are not to be regarded.”

BOOK II

Critical Logic

CHAPTER I: THE NATURE OF CERTAINTY

70. We have studied, in *Dialectics*, the laws which govern the *form* of reasoning; in **Critical Logic** we are to examine the certainty of the propositions, *i.e.*, of the *matter* of reasoning, and the validity of the reasoning process itself. For this purpose we are to consider: 1. *The nature of certainty*; 2. *The existence of certainty*; 3. *The means of attaining certainty*, and 4. *The ultimate test or criterion of certainty*.

71. **Certainty** is defined as that state of mind in which we firmly adhere to a truth, on account of motives that exclude all fear of error. To study its nature, we must examine: (a) *The nature of truth and of its opposite, falsity*; (b) *The various states of our minds with regard to truth*, and (c) *The elements that make up certainty*.

ARTICLE I. TRUTH AND FALSITY

72. **Truth** denotes *conformity between a mind and an object*. This conformity may be differently viewed:

1. When we consider the knowledge of the mind as conformable to the object known, we have **logical truth**; thus we speak of 'true judgments,' 'a true understanding of a fact or of a theory,' etc.
2. When we consider an object as cognoscible, *i.e.*, as conformable to real or possible knowledge, we have

metaphysical truth. In this sense the truth of an object is really identical with the very being of the object, for an object is cognoscible inasmuch as it has being; therefore all things have metaphysical truth.

3. When we consider language as conformable to the knowledge of him who uses it, we have **moral truth**; thus we say: 'a true account,' 'a true statement,' etc.

Logic treats of logical truth.

73. **Falsity** is the opposite of *truth*. The mere absence of truth is sometimes called *negative falsity*; but this is not falsity in the proper sense of the word. We never speak of metaphysical falsity, for all things have metaphysical truth: even a false coin is truly what it is, and cognoscible as such; when we call it 'false,' we use a figure of speech by which we mean 'calculated to deceive.' **Logical falsity** exists when there is something in the intellect which is not conformable to the object; **moral falsity**, or falsehood, exists when there is something in the expression not conformable to what is in the mind.

74. **Logical falsity may occur in a judgment in three ways:**

1. The intellect may affirm something which is not in the object; as when it affirms that matter can think, or it counts six stars where there are but five.
2. It may affirm as real what is only apparent; *e.g.*, that the sun moves around the earth.
3. It may deny what really is, *e.g.*, the motion of the earth.

75. The terms 'true' and 'false' are chiefly applied to **judgments** and propositions. Still, a mere **apprehension** or idea may also be called true; for it contains conformity between the mind and an object. But a mere apprehension is never called 'a truth'; this expression is confined to a judgment or a proposition.

76. **Thesis I.** *A mere apprehension, as such, cannot be false.*
Proof. A mere apprehension, as such, is merely a mental image of something real or possible (for we cannot have an image of something absolutely impossible, *e.g.*, of a square circle, nor of a mere nothing); but every image, as such, *i.e.*, in as far as it is an

image, is necessarily conformable to that of which it is the image; else it would not be the image of it. Therefore, inasmuch as it is an image at all, it is true, not false. A portrait may not resemble the person who sat for it, but it represents what it represents, and so far it is a true image.

77. If it be **objected** that we may have a wrong idea or notion of a thing, *e.g.*, of a spirit, conceiving it as a being composed of thin air, we *answer* that our concept of a being composed of thin air is a true idea; for such a being is possible; but, if we go on to judge that such a being is what is called a spirit, we do more than conceive an idea—we join two ideas, we pronounce a judgment. It is not then the mere apprehension but the judgment which is false.

But can we not have an idea to which no possible being corresponds, *e.g.*, of a 'square circle'? We have ideas of 'square' and of 'circle'; but we cannot either imagine or conceive a square circle. If we proceed to form a judgment that these ideas are compatible with each other, the error is in our judgment, not in our apprehensions. We do not deny that many men have wrong ideas, *e.g.*, of religion, of the Catholic Church, of indulgences, of literary excellence, of honor, etc.; but the falsity in those ideas is due to the false judgments which those ideas implicitly contain, not to the ideas as ideas. For instance, a man conceives of an indulgence as 'leave to commit sin,' and he judges that this is the meaning of the word in Catholic doctrine.

ARTICLE II. STATES OF THE MIND WITH REGARD TO TRUTH

78. 1. **Ignorance** is the state of a mind to which the truth is not presented at all; thus, we are all ignorant whether the number of the stars is odd or even. Ignorance is *vincible* if it is in our power to remove it; else it is *invincible*.
2. **Doubt** is the state of a mind hesitating whether to assent to a truth or not. A *positive* doubt sees reasons for and against assent; a *negative* doubt sees no reasons for either side; it comes to the same as ignorance. A mere doubt inclines the mind to neither side; but doubt may be

accompanied by suspicion or opinion.

3. **Suspicion** is the state of a mind which has more leaning to one judgment than to its contradictory, but still pronounces no judgment.
4. **Opinion** is the state of a mind pronouncing a judgment, but not without fear of error. The motives for assenting are called the *probability* of a judgment. **Probability** is said to be *intrinsic* when the motives for assent are drawn from the consideration of the matter; *extrinsic*, when they are drawn from the statements of other persons.
5. **Certainty** is the state of a mind assenting to a truth without fear of error. If this fear of error is excluded by motives which leave no room for reasonable doubt, we have certainty in the *proper* sense of the word; if the fear of error is excluded without such motives, we have certainty *improperly* so called. In the latter case, the fear of error is excluded by the free action of the will, which turns away the intellect from considering all reasons of doubt.

79. It is useful to distinguish **speculative** from **practical** judgments: the former regard the certainty of knowledge, *e.g.*, "The bread before me is not poisoned"; the latter, the prudence of action, *e.g.*, "I may eat that bread without further examination." We act prudently when we look for the best guidance of reason that circumstances allow; strict certainty cannot be had concerning every step of daily conduct.

80. Since prudence is not inconsistent with a possibility of error, there may be **invincible error** connected with prudent practical judgments; but all error is inconsistent with strict certainty, and there can be no invincible error connected with judgments which are strictly certain.

81. Error in judgments of any kind, speculative or practical, is always **traceable to free will**. It cannot, of course, be caused by the objective truth; nor can the intellect be necessitated to judge falsely, since its very essence consists in the power of knowing,

i.e., grasping, truth. There remains only one possible cause of error, viz., man's freedom to embrace a proposition. The free will of man can often bend the intellect so to fix its attention on the probabilities of a proposition as to overlook all reasons to doubt, and thus form a false judgment, firmly adhering to it without fear of error: this is not certainty, however, in the proper sense of the word (No. 78. 5)

82. **Error** or falsity cannot strictly be predicated of *ignorance*, *doubt*, or *suspicion*; for these states of the mind neither affirm nor deny anything whatever. Ignorance may be culpable, doubt may be unreasonable, suspicion unfounded and rash; but none of these is properly called false. Error can be predicated of nothing but *opinion* and *certainty* improperly so styled, *i.e.*, of that state of mind which excludes the fear of error by the force of the will.

83. While the will is the ultimate source of all error, there are various **proximate sources**; the chief are:

1. *Prejudices*, *i.e.*, judgments formerly assented to without proper examination.
2. Imperfect *teaching* or false information regarding facts and principles.
3. *Confusion of ideas*, whether resulting from dulness, *i.e.*, slowness to distinguish between things similar, or from present inattention, owing to fatigue, negligence, multiplicity of cares, etc.
4. *Passion*, *i.e.*, violent desire or aversion, which prompts our will to accept as true what is pleasing to us.
5. *Impatience* to arrive at a conclusion, either because we are eager to act, or too conceited to doubt our judgment, or too vain to acknowledge our ignorance. From all this it is evident that virtue is favorable to the acquisition of sound knowledge.
6. Another frequent source of erroneous judgments in many persons is a diseased condition of the nervous system or a portion of it. This abnormal state of the body may give rise to a variety of phantasms so vividly

presented to the mind as to prevent calm consideration of the reasons for or against the formation of a judgment.

ARTICLE III. THE ELEMENTS THAT MAKE UP CERTAINTY

84. We have defined *certainty proper* as the state of mind in which we firmly adhere to truth, on account of motives which exclude all fear of error. Several **elements** are here combined: 1. **Subjectively**, *i.e.*, considering the acts of the mind, we have a firm adhesion (a positive element), and the exclusion of all fear of error (a negative element). 2. **Objectively**, *i.e.*, considering the object known, we have such a manifestation of a truth as is sufficient to exclude all fear of error. The subjective adhesion is caused by the objective manifestation of truth. It is called *subjective certainty*, the manifestation of the truth being designated as *objective certainty*.

85. When the mind reflects on the fact that it has this firm adhesion, its certainty is called **reflex**; when it does not reflect on this fact, its certainty is **direct**. **Philosophical certainty** does not differ from ordinary reflex certainty except in this, that it notices distinctly and scientifically the motives of adhesion to a truth.

86. If we examine objective certainty still further, we find that the truth manifested may be of *three species*, which give respectively three different names to certainty; viz.:

1. Certainty is called **metaphysical** when the mind sees that a proposition is essentially true because its contradictory would be absurd; in such a case an exception is absolutely impossible; *e.g.*, "Virtue is praiseworthy," "A triangle has three sides."
2. Certainty is **physical** when a fact is seen to be so necessary, according to the laws of material nature, that no one but the Author of those laws can make an exception; *e.g.*, "The dead do not return to life."
3. Certainty is **moral** when the mind sees that something is constantly and universally true in the conduct of men, although dependent on their free choice; *e.g.*, "Serious men do not tell a falsehood on important points without

weighty motives.”

87. The term ‘moral certainty’ is often used in a **looser sense** to denote a strong probability; *e.g.*, I have a moral certainty that this house is not on fire just now, though I have no real certainty on the subject.

88. Subjectively considered, all kinds of certainty are alike in the **negative element**, *i.e.*, all exclude fear of error; but the **positive element**, *i.e.*, the intensity of the mind’s adhesion to the truth, may be more or less firm: in some cases, as in axioms, and generally in all that is immediately evident, the mind cannot doubt the agreement of subject and predicate. Thus, we cannot help seeing that a whole is greater than its parts, that some bodies exist, that virtue and vice differ from each other, etc. Even in many things that are only mediately evident we cannot entertain a doubt; *e.g.*, no well-informed man can doubt that ancient Rome existed. In many matters, however, we can refuse to admit the objective truth; and in others we even find it difficult to steady our attention sufficiently on the object to exclude all doubt. Metaphysical certainty admitting no possible exception is, as such, nobler than the other kinds; still, it is not always stronger in a given case; thus, I am more intensely convinced of Cæsar’s death, which is a matter of moral certainty, than of many theses in Mathematics or Philosophy, which rest on metaphysical principles.

CHAPTER II: THE EXISTENCE OF CERTAINTY

89. Scholastic Philosophy begins, as the Physical Sciences pretend to do, by ascertaining and examining **undeniable facts**; in this particular it differs strikingly from many false systems in Philosophy which commence with theories directly contradictory to all experience. When entering on the subject of the existence of certainty, we are at once brought face to face with a patent fact which may be stated thus: *All men having the full use of reason exhibit a direct and natural adhesion to many truths as objectively certain.*

90. We are not yet maintaining that those truths *are* objectively certain; we are only stating the undeniable fact that all men adhere to them as objectively certain. We call this adhesion *direct*, *i.e.*, antecedent to reflection and to philosophic analysis. For instance, all men consider their own existence, the existence of bodies, the connection between cause and effect, the difference between right and wrong as objectively certain. (See Balmes’s *Fundamental Philosophy*, cc. 1, 2, 3; Kleutgen’s *Philosophie*, 3d Treatise.) No fact on which any physical science relies is more undeniable. We have called this adhesion *natural*, because in science we call any effect natural if it is found constantly and universally to attend a given cause. Now, this adhesion is constantly and universally found in man; therefore it must be natural to man.

91. **Thesis II.** *This direct and natural adhesion of all men to many truths as objectively certain is (a) certainty properly so called; (b) not indeed philosophical certainty, but (c) capable of becoming such.*

Proof: (a) Certainty properly so called is a firm adhesion to a truth, on account of motives which exclude all fear of error. But the adhesion here spoken of is such; therefore it is certainty properly so called. *We prove the minor:*

1. *It is firm;* in fact, man cannot rid himself of it.[*]
2. *It excludes fear of error; i.e.,* we do not mistrust these judgments.
3. This fear of error is excluded by the evidence of the *objective truth*. As St. Thomas expresses it: "It is the property of first principles that they not only are necessarily true, but also manifest themselves evidently as objectively true." If this fear of error were not excluded by the evidence of the objective truth, it would be excluded either by the free will of man or by a blind necessity compelling man to judge wrongly. But it is not excluded by our will, for we adhere to the truth even against our will. Nor by a blind necessity to judge falsely; for then our intellect would be no intellect at all, since an intellect is a power to see the truth, not a power to act blindly.

(b) *This direct adhesion is not itself philosophic certainty;* for it is antecedent to reflection and analysis, while philosophic certainty is subsequent to both.

(c) *It is capable of becoming philosophic certainty;* for, when reflected on and analyzed, it is distinctly seen to contain motives sufficient to exclude all fear of error, and thus the element is supplied which constitutes the accidental difference between ordinary certainty and philosophic certainty, viz., the distinct perception of the motives for adhesion to truth (No. 85).

92. **Objections:** 1. This reasoning supposes several things that have not yet been demonstrated; *e.g.,* that we have understanding. *Answer.* It does not suppose anything

that needs demonstration or that could reasonably be doubted.

2. Some judgments in which all men concurred were false; *e.g.,* that the sun moved round the earth. *Answer.* All men *judged* that the sun moved around the earth, we distinguish; they judged about the scientific question whether it was the earth's or the sun's motion that caused the phenomena perceived, we deny; few men gave this question any thought, and those who did would naturally judge that the motion *appeared* to be in the sun. If any judged that it *was* in the sun, they erred freely. All judged that the sun was seen in different directions successively, we grant. They called that change 'motion,' and so do even the learned to-day, when they speak of the sun as rising and setting, and they distinguish apparent from real motion, relative from absolute motion.

93. The only escape from the thesis just proved is that attempted by the **Sceptics**, *i.e.,* by those few philosophers who pretend that man can really be certain of nothing. Sceptics are of two kinds: *universal* or *subjective* Sceptics, who refuse to admit any certainty at all, even that of their own existence; and *partial* or *objective* Sceptics, who admit their own existence and nothing or very little more.

94. **Thesis III.** *The theory of Universal Scepticism is self-contradictory.* *Proof.* That theory is self-contradictory, which affirms and denies the same thing; but such is the theory of universal Scepticism. Therefore it is self-contradictory. *We prove the minor:* Scepticism denies that there is any certainty at all; at the same time it implicitly affirms several things as certain; *e.g.,* that certainty is something different from doubt, that the words used have certain meanings, that those using them exist, etc. If the Sceptic should plead that he does not hold even those points as certain, he must then grant that, for all he knows, he may be saying and even meaning just the contrary of what he teaches, which would be an absurd theory; but even this would implicitly

affirm that the Sceptic exists, speaks, etc.

95. In connection with Scepticism, we must consider the **Methodic Doubt** recommended by Descartes, who, under the Latinized name of Cartesius, wrote in the middle of the seventeenth century. He was not a Sceptic; but he traced out a false system of studying the existence of certainty: destroying the solid basis of Philosophy, he substituted for it a weak fabric of his own invention, and left little in the minds of his followers but ruin and confusion. He maintained, (a) That every philosopher should begin his speculations by doubting of everything. (b) Next, the philosopher will find that he cannot help granting the fact of his own thought, and he will conclude from it his own existence: *Cogito, ergo sum*—"I think, therefore I am." (c) Hence the would-be philosopher will infer the general rule that whatever is clearly perceived is true. (d) Then finding that he clearly perceives the idea of God, he thence concludes to the existence of God. (e) From the veracity of God he infers the reliability of his own faculties. (f) Thence, at last, he reasons to the certainty of his knowledge.

96. **Thesis IV.** *Descartes' Methodic Doubt is absurd. Proof.* That is absurd which affirms and denies the same thing; but the doubt in question does so. For in it the philosopher begins by denying the reliability of reason, and at once implicitly affirms its reliability by using it to prove his own existence: "I think, therefore I am." He pretends to doubt all his faculties, and still he treats the guidance of those same faculties as reliable. Besides, Descartes moves in a vicious circle: he proves the reliability of our faculties by the veracity of God, and the veracity of God by the reliability of our faculties, etc.

97. The error of Sceptics arises from their **false supposition** that nothing is certain which is not demonstrated by discursive reasoning. Now, the science of Mathematics begins by the admission of axioms which are self-evident; *e.g.*, that "the whole is greater than a part," that "two things equal to a third are equal to each other," etc. The science of Philosophy must follow a similar process: it must draw its first conclusions from premises which are evident without proof. Besides, like Mathematics and

all other sciences, it must admit without proof the reliability of the reasoning process. If the first premises and the reliability of reason required proof, man could never make the first start in scientific studies; in fact, he would be incapable of reasoning at all: he would not be a rational being.

98. Every philosopher, therefore, must, on entering the field of science, affirm with certainty: 1. His own existence; called *the first fact*. 2. The principle of contradiction, *viz.*, that a thing cannot 'be and not be' at the same time; called *the first principle*. 3. The power of the intellect to know truth; called *the first condition*. These truths are not blindly admitted: they are seen to be objectively evident. There is no alternative between admitting them and admitting the self-contradiction of universal Scepticism.

99. To refute **partial Scepticism**, we must prove the reliability of the various means by which certainty may be attained, as we shall do in the following chapter. Still, the arguments which we shall adduce will, in many cases, be rather *scientific explanations than strict proofs: scientific explanations*, because they will show distinctly what causes or reasons we have for firm adhesion to the truths; *not strict proofs*, because the reliability of the means in question is in several cases proved while taking their reliability for granted, as having no need of demonstration.

[*] The sceptic Pyrrho, when laughed at for fleeing from a falling stone with as much earnestness as if he had no doubt of its reality, replied ingenuously: "It is hard entirely to throw off human nature." If any votary of philosophy should begin to have any real doubts of the existence of certainty, he would need rest of mind and healthy exercise of body, not abstract reasoning, to convince him of objective certainty.

CHAPTER III: MEANS OF ATTAINING CERTAINTY

100. The **means at our disposal to attain certainty** are, *directly*, our own cognoscive powers or faculties, viz., intellect and sensation, and, *indirectly*, the authority of other men. To explain these clearly we must treat: 1. Of *our cognoscive powers in general*; 2. Of *Intellect* in particular; 3. Of *sensation*; 4. Of *authority*. To all this we shall add a chapter on *common sense*, which, though proceeding from the intellect, requires for the discussion of its certainty the previous understanding of the reliability of intellect, sensation, and authority.

ARTICLE I. A SKETCH OF OUR COGNOSCIVE POWERS

101. I. **The outer senses.** Our first step in the acquisition of knowledge is the perception of material objects by means of material instruments which are parts of ourselves, and are called the organs of sense.

102. An **organ** is a part of a living body peculiarly constructed by the Creator for the purpose of exercising a function of life. Living bodies are made up of such organs. In man, and in the higher animals generally, five of these organs are intended for the perception of exterior bodily objects; these are called the organs of the five outer or exterior senses, viz., of the *sight, hearing, smell, taste, and touch*.[*]

103. II. **The inner sense.** There is, besides, an internal or

inner sense, whose organ is some portion at least of the nervous system; it perceives interior modifications of the animal body, such as cause the feelings of hunger, thirst, fatigue, pain, comfort, etc. It also perceives the actions and affections of the various external senses; for an animal not only sees, hears, tastes, etc., but it also *feels* that it sees, hears, tastes, etc. This inner sense, in as far as it takes cognizance of what is done by the outer senses, is often called *the common sense*, and its organ is styled the common sensory; but the term *common sense*, without the definite article 'the,' stands for a very different idea, viz., for the common judgment of men on matters of universal importance to mankind.

104. The inner sense does not perceive the causes of the affections which it perceives, but only the fact that those affections exist. As both the objects of sensation and its organs are material, **the action of all sensation is material**, organic, and is common to man and brute. But the organ is, of course, not dead but living matter; it is one substance with the soul, *i.e.*, with the principle of life; hence the actions of any sense are actions of the living compound soul and body.

105. III. **The imagination.** When an animal perceives material objects, it forms and retains of them material images or representations, called *phantasms*. The organ used for these purposes is the brain. The imagination is the power of forming and retaining those images, of recalling them on occasions, and of combining them in wonderful varieties, thus forming new phantasms which in turn may be recorded and retained, etc. We should not suppose those images to be pictures, for we can have no picture of taste, smell, etc.; they are modifications of some kind.

106. IV. **The sensile memory.** This name denotes that portion of the imaginative power which retains and recalls the phantasms, but it adds a further function, viz., that of recognizing, not intellectually however, present sense-perceptions and present phantasms as identical with former phantasms and former sense-perceptions. By this faculty "The ox knoweth his owner, and the ass his master's crib," as Holy Writ expresses it. The inner sense, the common sense, the imagination,

and the sensile memory need not be considered as distinct faculties, but rather as various functions of the same faculty, which may be generally designated as *the inner sense*.

107. V. The **intellect**, understanding, or mind, in the proper meaning of this term, is an entirely different faculty; it does not confine its perceptions to the material qualities of objects, as all sense-action does, but it penetrates into the very essences of things material and immaterial (*intus legit*, it reads within), and it forms concepts or ideas representing essences, *e.g.*, of 'plant,' 'tree,' 'spirit,' etc. Even when it considers mere accidents, *e.g.*, 'color,' 'shape,' 'size,' it need not simply consider this individual color, shape, or size, as material faculties must do, but it can consider the essence of color, shape, and size; so that, by a power peculiar to itself, it forms ideas representing qualities as abstract—*i.e.*, drawn forth, as it were, from the subjects in which they are found and thus stripped of their individuality.

108. VI. **The judgment**. Besides conceiving ideas, the intellect judges; *i.e.*, it compares two ideas together and pronounces on their agreement or disagreement. This act of the intellect is called *judgment*; it was explained in *Dialectics* (No. 17).

109. VII. **Reason** is not a faculty distinct from the intellect and the judgment; it is the intellectual act or process of deriving judgments from other judgments; it, too, was sufficiently explained above (No. 22).

110. VIII. **The intellectual memory** is another function of the intellect; it enables us to perceive and reproduce ideas, judgments, and reasonings formerly elicited, and to recognize identity or difference between present and former objects of knowledge. The intellectual memory is greatly assisted in its action by the sensile memory, which associates phantasms with mental concepts.

111. IX. **Consciousness** is the intellectual power of perceiving our own internal acts, whether of intellect and will or of our interior sense; it will be more fully explained in the following article.

ARTICLE II. THE INTELLECT IN PARTICULAR

112. **The intellect** or understanding may be called the *universal means* by which certainty is to be acquired; for certainty is a state of the mind or intellect, and therefore it cannot be reached except by the intellect. That the intellect may begin to act, it must be excited by sensation; and therefore those whose senses are very imperfect remain idiotic. But sense, no matter how perfect, can never elicit a judgment. Still, sense is a means by which the human intellect is brought into communication with many objects of knowledge, and the reliability of sense-perception will be examined in the next article.

113. We are just now concerned with **the certainty of intellectual knowledge as such**. We must begin this study by recalling to mind that *the first condition* for the attaining of all certainty is the capacity of the intellect to reach truth. We need not, then, prove the reliability of our intellect. But we must here examine *what is involved or included in this capacity of the intellect to know truth*.

It involves the certainty, 1. Of *consciousness*; 2. Of our *primary ideas*; 3. Of *immediate analytical judgments*; 4. Of the *intellectual memory*; 5. Of the *reasoning process*. We shall examine the reliability of these functions of the intellect in detail; in doing so, we shall *scientifically explain* rather than *prove* our theses; for the first condition of certainty needs no proof.

§ 1. *Consciousness*

114. **Consciousness** is the reflex perception of our own acts, *i.e.*, of ourselves as acting. We not only think and feel, but, when we reflect, our mind perceives that we think and feel. This reflection consists, as the word indicates (*reflectere*, to bend back), in the bending back of the mind upon itself, upon its own acts. Reflection is, of course, not the beginning of our knowledge; for we must first think and feel before we can perceive that we think and feel. But when we scrutinize our own knowledge, this reflection on self is the first act to be examined in the process of our study.

115. This reflection should not be confounded with reflection in the sense of *remembrance*. **Nor should consciousness be mistaken for the inner sense**, explained above (No. 103). It differs from it: (a) In the *subject* that elicits the act: consciousness is elicited by the simple intellect, sensation by the human compound; (b) In the *object* perceived: consciousness perceives both simple and organic actions, the inner sense organic actions only; (c) In the *manner* of perception: the perception of sense terminates in phantasms, that of consciousness in ideas and judgments, affirming that the facts exist, *i.e.*, that we really think or feel as we are conscious we do. But consciousness is not the function which perceives what are the causes of our feelings, *e.g.*, the causes of pain or comfort experienced; such causes are made known to us by reasoning and repeated observation united, *i.e.*, by induction.

116. **Thesis V.** *The reliability of consciousness is included in our capacity to know truth.*

Explanation. We are not proving our capacity to know truth; this capacity needs no proof (Nos. 97, 98); but we maintain here that this same capacity of our intellect to know truth could not exist unless our consciousness were reliable.

Proof. That is included in our capacity to know truth, without which we could never know whether we know or not; but without the reliability of consciousness we could never know whether we know or not. Therefore—

We prove the minor. It is only through consciousness that we know our own intellectual acts; therefore, if consciousness were not reliable, we could not really know whether we are eliciting acts of knowledge.

117. It will be noticed that the field of **consciousness covers** the following objects of knowledge: 1. Our own existence; for we perceive ourselves as being the subjects of our intellectual acts and of our sensations. 2. The existence of our intellectual acts. 3. The existence of our internal sense and of its acts.

118. **It may be objected:** 1. We are not conscious of all our

internal acts. *We answer:* We claim certainty for those only of which we are conscious.

2. Many persons are conscious of affections which do not exist; *e.g.*, that they are ill when they are not ill. *We answer:* They are conscious of certain feelings, from which they infer by faulty reasoning that they are ill. Consciousness reveals only the existence of the feelings, not their causes.
3. Lunatics are conscious of being kings, princes, etc. *Answer.* They are conscious of judging themselves to be kings, etc., and they do judge so owing to their diseased imagination. For lunacy supposes an inability to distinguish between imaginations and real perceptions; but the consciousness of even a lunatic is reliable.
4. No one can know that his certainty is not owing to a diseased imagination. *Answer.* If so, universal Scepticism would follow, and the intellect would be incapable of knowing truth.
5. The proof takes for granted the reliability of our consciousness, the point to be proved. *Answer.* We are not giving a strict proof, but only a scientific explanation; for the first truths cannot be strictly proved and need no demonstration.

§ 2. Primary Ideas

119. By **primary ideas** we do not mean inborn ideas; for no ideas are inborn in us: we have no ideas antecedently to sense-perception. But whereas by sense we form phantasms or material images of bodies observed, we form by our intellect ideas or immaterial images of what is cognoscible in those bodies; *e.g.*, of 'being,' 'substance,' 'size,' 'color,' etc. The objects of sense are necessarily individual, extrinsic, and concrete qualities; the proper objects of the intellectual idea are universal and abstract notes.

120. **We call primary ideas** those of 'being,' 'truth,' 'substance,'

'cause,' 'effect,' etc.; all those, namely, that are involved in our commonest perceptions. Of these we assert that they have *objective truth*, and that their objective truth is implied in the very capacity of our intellect to understand truth. Kant makes them *subjective forms* only, to which nothing objective corresponds.

121. **Thesis VI.** *Our primary ideas are objectively true, i.e., conformable to objects really existing.*

Proof. If these ideas were not objectively true, not conformable to objects really existing, our commonest knowledge would be but an illusion; if, for instance, 'being,' 'truth,' 'substance,' etc., were mere figments of the imagination or of the intellect, we could never know anything. Therefore they are objectively true.

122. It must be carefully noticed, however, that the *object of a universal idea* does not really exist as a universal object: everything that really exists is an individual thing. Likewise, the object of an abstract idea does not really exist as an abstract object: every existing being is concrete. For instance, there exists no real abstract or universal cause, nor any real abstract and universal effect, substance, being, etc., just as there exists no real abstract or universal animal, which would be neither rational nor irrational, but simply have the qualities that make up the genus animal. How, then, is the idea 'animal' objectively true? Because the qualities expressed by the term 'animal' really exist in every individual animal. Nothing, then, in nature *exists* in the abstract; but anything may be viewed in the abstract by the intellect, and abstract notes are the distinctive objects of intellectual cognition.

123. Now, the abstract idea is the same as the universal idea: the word '**abstract**' denotes the manner in which such an idea is formed, while the word '**universal**' denotes its applicability to many objects. Thus, I form the abstract idea 'animal' by attending to the notes, which I perceive in any individual animal, viz., 'a material substance endowed with life and feeling'; these notes I draw forth, or abstract (*abstraho*), for separate consideration, or, if you wish, I withdraw my attention from the other qualities of that same individual animal which I am considering. Since these same notes conceived are common to all animals, my concept of

'animal' is a universal concept, *i.e.*, it is predicable of a whole class. In as far as my idea 'animal' denotes only the qualities or notes that make up its *comprehension*, it is called a **direct universal**; but when I reflect besides that the idea is applicable to many beings, *i.e.*, when I consider also its *extension*, the idea is then called a **reflex universal**.

124. Philosophers have warmly disputed upon the nature of these reflex universal: the **Nominalists** call them *mere names*, which are given to a confused collection of individuals, but to which no concepts correspond; the **Conceptualists** call them *concepts*, but they suppose those concepts to be mere figments of the intellect to which no real objects correspond; the **Exaggerated Realists** supposed that *universal beings* really exist corresponding to the universal concepts; the **Moderate Realists** maintain that *some reality* in objects corresponds to the abstract idea, yet that such reality does not exist objectively as an abstract or universal being without individualizing notes, but it exists concretely in each individual object. The explanation we have given in the two preceding numbers is that of the moderate realists; but the scientific proofs of our doctrine and the refutation of other systems belong to Psychology.

§ 3. Immediate Analytical Judgments

125. **Analytical judgments**, as explained above (No. 17), are those judgments in which the agreement or disagreement of the subject and predicate is perceived by the mere analysis of their meaning, without the aid of experience. If this agreement or disagreement is perceived at once, without reasoning, the judgments are said to be **immediate**.

126. **Thesis VII.** *Immediate analytical judgments can never be false.*

Proof 1. That such judgments cannot be false is made evident by considering their very nature; for they consist in affirming or denying explicitly what the very idea of the subject contained or excluded implicitly; *e.g.*, when I conceive 'a part,' I conceive

something as distinct from 'the whole,' and distinct from it by being less. Thus all immediate analytical judgments, *e.g.*, 'The part is less than the whole,' do no more than affirm or deny explicitly what the subject of them contained or excluded implicitly before the judgment was formed.

Proof 2. Our intellect has the power to know truth (No. 98). Therefore that can give us real certainty which is implied in the capacity of our intellect to know truth, or which must be objectively true if the intellect can know truth at all. But such are these judgments. For if our intellect could not be relied on in these judgments, *e.g.*, that 'a circle is round,' that 'a part is less than the whole,' etc., then the intellect could never be relied on in any judgments; for none are more evident. Therefore it can be relied on in these: they give us real certainty.

127. **Objections:** 1. This thesis cannot be demonstrated.

Answer. It need not be; for it is evident.

2. Some of the judgments are false, *e.g.*, "The whole is greater than the part"; for the whole Blessed Trinity is not greater than any of the Persons. *Answer.* The Divine Persons are not parts of God; each of them is the infinite God whole and entire.

3. Another of these judgments is false, *viz.*, "Out of nothing nothing can be made"; for the world was made out of nothing. *Answer.* This analytical judgment means that nothingness cannot be a material out of which a thing can be made, while, in creating, God made the world without using any material; He did not make nothingness the material of His creation.

4. All our judgments are empirical; for they presuppose sensation. *Answer.* They presuppose sensation before we can conceive the ideas, we grant; they compare the ideas by attending to experience and sensation, we deny. Now, the latter is required for empiric judgments. (No. 17.)

5. No judgments are certain; for to err is natural to man. *Answer.* To err sometimes in his opinions, yes; to err in

his certain judgments, no.

6. Analytical judgments are useless; for their predicates are contained in their subjects, even though no judgments be elicited. *Answer.* They formally and explicitly discover and express what predicates are implicitly contained in their subjects.

§ 4. Memory

128. **Memory** is the power of retaining and re-awaking former knowledge, and of recognizing it as former knowledge. It is twofold:

1. **The sensile memory** retains and re-awakes phantasms—*e.g.*, of a whip formerly seen or heard and of a pain felt—and it perceives a connection or association between those phantasms. In this way brutes remember as well as men. (No. 106.)

2. **The intellectual memory** retains and re-awakes ideas—*e.g.*, of what we formerly saw, felt, read, thought, of willed—and it judges that the objects of those ideas were formerly perceived. In man the sensile and the intellectual memory work together and assist each other.

129. The memory acts **voluntarily** when it recalls the past at will; **spontaneously**, when the will has no share in the act. To act spontaneously, the memory must be aroused by a perception in some way associated with a former perception; *e.g.*, the fragrance of a fruit may recall its taste; the idea of eternity may recall the shortness of this present life.

130. **Thesis VIII.** *The reliability of our memory is contained in our power to know truth.*

Explanation. We do not maintain that we can recall all our former perceptions; but simply that, when our memory does recall a former perception, and judges with certainty that the object now recalled is identical with an object perceived before, it is reliable in such a judgment, and that this reliability of the memory is contained in the power of our intellect to know truth.

Proof. That is included in the intellect's power to know truth, without which all connected thought and all expression of thought would be impossible. But the reliability of our memory is such. For, unless our memory were reliable, we could not think connectedly, since one judgment would be forgotten before another could be compared with it; and no thought could be expressed, because no words could be remembered to express them.

131. If it be **objected** that our memory often deceives us, we *answer*: Not when it gives us, on careful consideration, positive testimony, excluding all fear of error. But men are often too careless, impatient, or presumptuous to examine their recollections properly.

§ 5. Reasoning

132. When we attempt to reason in order to prove the reliability of reasoning, we evidently do not pretend to give a strict proof; we simply give a **scientific explanation**, showing why it is that a conclusion logically derived from true premises must be as certain as the premises themselves.

133. **Thesis IX.** *Whoever grants the premises of logical reasoning cannot deny the conclusion.*

Proof. All logical reasoning, as explained above (Nos. 22, etc.), is based on this principle, that the conclusion is implicitly contained in the premises. Hence, he who would grant the premises and deny the conclusion would thereby affirm and deny the same thing; but one cannot deny what he affirms. Therefore whoever grants the premises of logical reasoning cannot deny the conclusion.

134. **Objections:** 1. If the conclusion were contained in the premises, nothing new would be learned by reasoning. *Answer.* The knowledge of the conclusion is new to us; for, although the conclusion was implicitly contained in the premises, we did not know this conclusion in particular till we arrived at it by reasoning. Thus, all the

theorems of Geometry are derived from the preceding theorems and ultimately from the axioms.

2. Reasoning leads men into many errors. *Answer.* Not when it is materially and formally correct.
3. The proof given holds only for the syllogism. *Answer.* All reasoning is reducible to the syllogistic. (See Nos. 35, etc.; in particular, for induction, No. 46.)

ARTICLE III. SENSATION

135. The faculty of **sensation** distinguishes all animals from all vegetable substances; for 'sentient' is the *difference* which, added to the *genus* 'living material substance,' constitutes the *species* 'animal.' By saying man is an 'animal' we mean exactly this, that he is a living material substance endowed with sense.

136. Now, sense is a cognitive power, *i.e.*, a power of knowing; its action, or knowledge, is elicited by a living material substance, and its organs consist of the living material nerves. It is a clear and certain principle that no action can be superior to the agent, else the effect would exceed the cause; therefore, as sense is a material power, **it can know nothing higher than material objects.**

137. Besides, any matter is a concrete individual portion of matter; both the organs and the objects of sense are such, and therefore every sense-action will be a concrete individual modification of a concrete individual portion of matter. But it is evident that a concrete individual modification of a concrete individual portion of matter can picture or represent by its own nature nothing but a concrete and individual modification of matter; now, perception of sense consists in such representation, hence **sense can perceive nothing but concrete and individual modifications of matter.**

138. When sense perceives the material modifications that take place within its own animal body, it is called **inner sense**; when it perceives the material modifications that take place outside of its animal body, it is called **outer sense**. Inner sense was more fully explained above (Nos. 103, 104).

§ 1. *The Inner Sense*

139. The **inner sense** does not testify to the causes of our feelings or affections; for by our inner sense we merely feel a certain affection called pain or comfort; by our animal instinct we are prompted to seek relief of the pain or increase of the comfort; but it is only by a process of inductive reasoning that we have learned intellectually to refer this certain feeling to a special cause. Thus we have learned by long experience that a peculiar feeling of discomfort arises from want of food, another from want of drink, etc.

140. **Thesis X.** *Inner sense is reliable in its perceptions; i.e., the material modifications perceived by it really exist.*

Proof. To say that the inner sense is not reliable in its perceptions, is the same as to say that those identical affections, or inner modifications of the animal body, which are perceived, do not really exist. But this cannot be said without absurdity; for 'to be perceived' means 'to be that which is perceived' or 'to exist as the object of perception.' If, then, those affections did not really exist, they would 'exist and not exist'; which is absurd.

141. **Objections:** 1. The inner sense sometimes testifies to the feeling of a pain in an amputated limb. *Answer.* It testifies to the feeling of a pain, we grant, and there really is a pain; but it does not testify to the exact cause of that pain. The feeling experienced now may be similar to that experienced before the limb was amputated. Then the feeling of pain arose from some lesion in that limb; and now, the imagination reproducing this former relation, affords us an occasion for judging that the present sensation is again owing to the limb which is no longer there. We feel a lesion, which we may be inclined, by the force of habit, to locate in the amputated limb, whereas the nerves are affected elsewhere, namely at their extremity, which is exposed and very sensitive.

2. The inner sense fails to report all affections. *Answer.* We

simply maintain that those affections exist which it does report.

3. The proof supposes that the inner affections are really felt and therefore must really exist; but perhaps we only imagine that we feel them. *Answer.* We know by consciousness that we can imagine a certain pain, for instance the pain of burning, and that we can feel that pain, but that there is a vast difference between these two acts.[*]

§ 2. *The Outer Senses*

142. We stated before (No. 102) that we perceive objects outside of us by the five outer senses of sight, hearing, smell, taste, and touch. **Two very different questions** present themselves on this subject: 1. How far is the testimony of our external senses reliable? 2. How do the senses work so as to give us reliable testimony? The full treatment of the latter question belongs to Psychology, that of the former to our present study of Critical Logic. We are absolutely certain of many facts, though we cannot satisfactorily explain how they are brought about: a man exhausted with hunger and fatigue is absolutely certain of the pleasure and the restoration of strength which he derives from a wholesome meal, although he cannot explain the exact process by which the senses and the digestive power contribute to these results; similarly, all men are certain that the outer senses often give reliable information, though few are able to describe the manner in which this is accomplished.

143. **The obvious facts in the case** are these: (a) We have various sensations of outer objects in and by our external senses; (b) *We judge the cause of these to exist in bodies, i.e.,* in substances distinct from our mind, having extension and peculiar powers of action; (c) We adhere to this judgment firmly without fear of error. **We maintain** that our firm adhesion to this judgment is due to the objective existence of bodies, and that therefore our external senses are reliable in their sensations of outward objects.

144. But some philosophers argue that we do not know bodies except by means of phantasms and ideas, which are subjective in us, and which, for all we know, may have no objective reality corresponding to them. These philosophers are called **Idealists**. They are divided into two schools: 1. Fichte, the leader of the **subjective school**, maintains that there exists nothing but his own mind which is ever imagining unrealities: "The *Ego* posits itself." 2. Berkeley, the leader of the **objective school**, makes God the direct cause of our phantasms and ideas.

145. Such speculations, instead of resting on solid facts, as all sciences should do, are in direct conflict with all known facts and with the firmest judgments of all mankind. Every sound mind knows for certain **the difference between real perceptions and mere imaginations**; and unsoundness of mind consists precisely in the inability of some men to distinguish between objective realities and mere phantasms. But there is no likelihood that any philosopher of note ever doubted the existence of bodies. Such as pretended to doubt did violence to their own good sense in order to support some pet theory, by which they earned the name of original thinkers.[*]

146. **Thesis XI.** *By our external senses we really perceive bodies, i.e., substances distinct from our mind, extended and resisting.*

Proof. Nothing exists without a reason for it; but there exist in us, as we know by consciousness, (a) Sensations; (b) Irresistible judgments that those sensations are caused by bodies, *i.e.*, by substances distinct from our mind, extended and resisting; therefore a reason must exist for those sensations and for those irresistible judgments. But that reason can be none other than bodies really existing; therefore they really exist.

We prove the last minor: If that reason were not in the bodies, it would be either, 1. In our minds, as Fichte maintains; or, 2. In God, as Berkeley supposes. No other reason is assigned by our opponents. Now, it is, 1. Not *in our minds*. If it were, we should produce those sensations and judgments necessarily or freely; but we do neither: (a) Not freely, for we see, hear, feel, etc., many things which we are totally unwilling to see, hear, feel, etc.; (b)

Not necessarily; for if we were so constituted that we necessarily elicited false judgments, our intellect would be essentially unreliable; it would be a power, not of knowing truth but of deception and falsification. 2. Not *in God*. Those who admit the existence of God at all, as Berkeley and his followers do, admit that He is the infinitely perfect Being; but a perfect being is essentially truthful and cannot be the source of a universal deception, as He would be if He produced those phantasms and gave us at the same time an irresistible impulse to judge falsely of their cause.

147. **Objections:**
1. An evil genius could produce the deception. *Answer.* We deny this; for the deception, if such it were, would be, not accidental, but natural and essential to man, and therefore it would be essential to man to judge falsely; and thus universal Scepticism would become reasonable.
 2. God would not be omnipotent if he could not directly produce on us all the effects that bodies can. *Answer.* He cannot give us an irresistible propensity to judge falsely; this would be against His own perfect nature, and it would leave us incapable of having certainty, of knowing truth.
 3. God does so in visions, *e.g.*, when He made Tobias see an Angel. *Answer.* The Angel had assumed a material body.
 4. Sometimes a vision is merely subjective. *Answer.* Then the intellect sees reason to suspect the truth.
 5. In dreams we judge irresistibly that we perceive real objects. *Answer.* In dreams we do not examine the certainty of our judgments; we have not that reflex certainty which we are here considering. Besides, in dreams we are not in the normal state of rational beings.
 6. Those suffering of *mania a potu* cannot rid themselves, even on reflection, of the perception, as they suppose it to be, of snakes, demons, etc. *Answer.* From the fact that a disordered mind cannot know the truth, it does not follow that a sound mind cannot; besides, they no doubt

perceive their own abnormal condition and see reasons, when they reflect at all, to doubt their visions.

7. From any act which is only subjective we cannot infer the existence of the objective reality; but sensation is only subjective. *Answer.* Our sensation is not merely subjective; for it is a perception, and a perception is the subjective act of taking in an object: a perception without an object perceived is a self-contradiction: there can be no taking in of nothing. Besides, we invincibly judge that our perceptions are due to objects (Nos. 143, etc.)

148. To understand **how far the reliability of our senses extends**, we have only to examine on what points sensation prompts us irresistibly to elicit judgments. As this is a question of great importance, we shall consider it with some detail.[*]

1. We may see a painting in the distance and judge it to be a statue; we may judge a sound to come from a greater distance than it does. Do our senses deceive us on those occasions? Not at all: in fact, the sight, as such, does not inform us whether all the parts of the object seen are equally near, as in a painting, or unequally, as in a statue. Neither sight nor hearing, as such, tell about distances: sight deals with color and, consequently, with the outlines of colored objects; hearing deals with sound, of which we perceive countless varieties. Each sense has thus its own **proper object of sense-perception** (*sensibile proprium*). The proper object of sight is *color*; of hearing, *sound*; of smell, *odor*; of taste, *flavor*; of touch, *temperature* and *resistance*. The perception of resistance enables us to distinguish between varieties of surfaces, some of which are noticed to be yielding or soft, others unyielding or hard; some are even or smooth; some uneven or rough; some are bounded by straight, others by curved lines; some extend over a large, others over a small space, etc.
2. As extension, outline or figure, number, etc., are

perceptible by touch and sight, they, and in general all those qualities of bodies which are perceptible by more than one sense, are called the **common objects of sense-perception** (*sensibile commune*).

3. Sense does not perceive color, sound, resistance, etc., in the **abstract**; but it perceives something colored, sounding, resisting, etc., in the **concrete**.
4. While by our senses we perceive some concrete body as colored, resisting, etc., **our intellect**, by its power of abstraction, abstracts, or considers apart, various notes or marks of that body, such as 'color,' 'resistance,' 'existence,' 'quality,' 'substance,' etc., and thus forms **abstract ideas**; next, by its power of judging, it compares these ideas and the objects perceived together, and pronounces **judgments**, such as 'this substance is colored,' 'something resisting exists,' etc.
5. **The senses usually assist each other**: the eye beholds what the hand touches; the ear perceives the sound, the eye the figure of the rattle or the string which the fingers move. Thus from earliest infancy we have learned by practice to associate our sense-perceptions with one another and with our intellectual acts; we have perfected our associations of phantasms by inductive reasoning, till we have acquired great readiness to judge of the qualities revealed to one sense by the proper object of another sense. For instance, on hearing a familiar human voice we know the presence and the very expression of countenance of a well-known person; from the fragrance of a fruit we can tell its taste; from the aroma we judge the form of a flower.
6. We see many reasons to judge, and on many points no reason to doubt, that **the senses of brute animals** work in the same way as our own. Brutes perceive the proper and the common objects of sense; and, as their organs and their instincts are often more perfect than ours, brutes may associate phantasms, derived from various

senses, more readily and perfectly than we do, as is well exemplified in the scent of the dog and the cunning ways of the fox.

7. Sense does not perceive substance as such; *i.e.*, as distinct from quality; but still, by perceiving the concrete qualities, it puts us into relation with substance. What is thus intellectually perceived on account of sense, is said to be **indirectly sensible** (*sensibile per accidens*). Brutes do not judge at all, in the proper sense of the word; they merely associate, *e.g.*, the stone thrown with the man who throws it, and they do not always do even that: the dog will often bite the stone itself. The Creator, in His wisdom, has given brutes as perfect a power of associating phantasms as is beneficial to themselves and to man, for whose advantage they are evidently intended.
8. Man both associates and judges; for he has instinct and reason. It is, however, only on occasions of some importance that we stop to consider whether our judgments are well enough founded to exclude all doubt. We find them to be such when, on careful examination, we perceive that they give us evidence of the objective truth. That they may do so with regard to our sense-perceptions, the following **conditions** must be fulfilled: (a) We must be conscious that we are in a normal or healthy condition; else we can see reason to suspect the testimony of our senses. (b) We must be aware that our surroundings appear normal; *e.g.*, if all around us looked yellow, we should see reason to suspect that our eyes were jaundiced. (c) We must find that our senses are concordant with one another and constant in their testimony; *e.g.*, if a passing glance makes me perceive an unusual appearance, I look again with care, I shift my position to dispel all possible illusion of the sight; or I even apply my hands to touch what excites my surprise.

149. **Thesis XII.** *The external senses, acting under proper conditions, are reliable with regard to their proper and their common objects of sensation.*

The proper conditions here spoken of have just been explained. This thesis defines the extent to which the outer senses are perfectly reliable.

Proof. The senses are reliable in their testimony if they perceive nothing but the objective truth; but such is the case. For, being physical powers, they work necessarily, and therefore they can only perceive the objects presented to them; else they would perceive what does not exist; *i.e.*, that which does not exist would be an object of perception; which is absurd.

150. We do not, then, **claim certainty** for every judgment that is formed on occasion of sense-perception, but only for what the senses really report, *i.e.*, the existence of those sensible qualities which are the proper and the common objects of sensation. The substance itself in which those sensible qualities exist is not apprehended, by the senses, as distinct from those qualities. From the knowledge of the qualities perceived by sense, the intellect judges the nature of the substance in which those qualities inhere. In forming its estimate of that substance, the intellect may often be mistaken; *e.g.*, it may judge that to be an orange which is a lump of wax; it may mistake a picture for a body. But even in such cases the intellect is not led necessarily into error, but it can suspend its judgment till all fear of error has been removed.

151. **Objections:** 1. The senses tell us that sugar is sweet, fire hot, etc., while Descartes and others prove that these qualities are not in the bodies perceived, but in the senses. *Answer.* When we say that sugar is sweet, fire hot, etc., we mean that those bodies have real qualities which produce in us corresponding sensations of sweetness, heat, etc.; both the qualities that are in those bodies and the sensations that are in us are denominated by the same terms analogically. Certainly sugar and fire have real qualities which are causes of our sensations.

2. We know by science that the sun is not exactly there where we see it; here the sight deceives us. *Answer.* We know by the sight nothing but the color of the sun; its place, size, etc., are inferred by inductive reasoning.
3. But even the color of the sun is not such as we see it when modified by the atmosphere. *Answer.* We do not claim certainty except for what we perceive; now, we perceive by the sight the color such as it is when it reaches our eyes; with anything else the sense of sight has nothing to do.
4. But the sight distorts its objects; thus, a square tower appears round in the distance. *Answer.* The sight reports only the colors of the different parts of the tower; all inference as to its shape, size, etc., are conclusions of inductive reasoning, which is often too imperfect to give certainty.
5. By admitting that the senses must be concordant and constant in their testimony, we imply that each sense singly can be mistaken in certain cases, at least for a while. *Answer.* All we imply is that the senses give no sufficient ground for certainty till we have examined whether all the conditions are complied with.
6. When I see a stick plunged into water, I see it broken where it touches the surface; here my sight deceives me. *Answer.* My sight reports the truth, viz.: that the stick appears as if broken.
7. Then our senses can report appearances only; e.g., that I see the appearance of a man, not that I see a man. *Answer.* Sense apprehends appearances only; but our intellect understands that appearances are accidents which naturally exist in substances. When I see the appearance of a man, I understand there must be a cause for that appearance; and, by attending to all the circumstances of the particular case, my mind soon forms a judgment, often absolutely certain, that on the present occasion the appearance of the man is due to the reality of his

- presence.
8. That our senses may be relied on, we must first know that the order of nature is constant; but we cannot learn this except from the testimony of the senses; therefore we cannot reason on this subject except in a vicious circle. *Answer.* We deny the major and the supposition that we need to reason at all in order to see the evidence of the common and the proper objects of sense, when the required conditions are attended to. We see color, we feel heat and resistance immediately.
 9. A color, odor, taste, etc., may please one man and displease another; therefore different men must apprehend objects differently; therefore all do not apprehend them correctly. *Answer.* The apprehensions are the same, but they do not suit all alike. As the organs of men are substantially alike in structure, with only accidental differences, we reasonably judge that the apprehensions of all men by sense are substantially the same, with only accidental differences. But the pleasure arising from colors and sounds is mostly due to associations of phantasms and sentiments; thus, orange and green please persons of different parties. Odors and tastes, being intended by the Creator to guide us in the selection of suitable food according to our varying bodily conditions, though identical in kind, will often please one and displease another, according to our several needs, thus displaying the wonderful wisdom with which Providence adapts means to an end.
 10. In the Holy Eucharist the senses are deceived. *Answer.* They apprehend the appearances which really exist, and thus there is no deception of the senses.
 11. Persons who are color-blind misjudge colors. *Answer.* Rather, they are unable to distinguish colors sufficiently to judge with certainty.

152. Consciousness and intellect put us into direct communication with objective truth, of which they see the evidence. Their perceptions are called **intuitions**, *i.e.*, visions of truth. It is the same with our sense-perceptions of the proper and the common objects of sense: they, too, give us intuitions or immediate evidence. Reasoning brings evidence to us in a more circuitous way; it gives **mediate evidence**. Such, too, is the evidence of sense-perceptions with regard to all testimony that implies the process of induction; *e.g.*, I have only mediate evidence by my sight of the distances of objects; for any judgment I pronounce on that subject is derived from observation and induction united.

153. **Authority** gives us certainty in a still more circuitous way; for it brings us into communication with truth by means of the statements of other persons. The truth thus reached is said to be *believed*, and authority is called an *extrinsic* motive of certainty. **Belief**, or faith, is Divine or human, according as the authority on which it rests is Divine or human. In Philosophy we are concerned with human faith; and the question to be now considered is, whether the authority of human witnesses can be relied upon to give perfect certainty.

154. **Thesis XIII.** *The testimony of men, under proper conditions, can give perfect certainty.*

The **conditions** required are: 1. That the facts testified to are sufficiently open or accessible to observation; 2. That they are of great moment; else they might not be noticed carefully; 3. That the witnesses are sensible men; 4. That they are either undoubtedly sincere, or, if not, that they are many, of sufficiently different characters, opinions, parties, interests, etc., to exclude all reasonable suspicion of collusion in the support of false statements. *Proof.* That testimony gives perfect certainty which convinces us beyond all reasonable doubt that the witnesses could not have been deceived themselves and did not wish to deceive us. But such is the testimony which fulfils the conditions just stated.

For: 1. *The witnesses could not have been deceived*, since: (a) The

facts are supposed to be open, accessible to observation; (b) They are of great moment, so as to invite careful examination; (c) The witnesses are sensible men, who do not act rashly and are not easily imposed upon; and, besides, they are of different opinions, characters, etc., so as not to make a mistake in common.

2. *They do not wish to deceive us*; since either they are known for certain to be sincere, and, of course, such men do not wish to deceive; or, if not certainly sincere, they are supposed to be many, of different characters, opinions, parties, interests, etc. Now, sensible men do not lie wantonly, especially on matters of importance; and, least of all, would they combine to propagate an important falsehood, unless some common grave interest led them into so disgraceful a crime. But they are supposed to have no such interest in common. There is, consequently, no reason to doubt their testimony.

155. **Objections:** 1. Each witness gives only probability, and no number of probabilities can make up certainty. *Answer.* Even one witness who is certainly intelligent, prudent, and sincere may give perfect certainty; but if the testimony of one or several still leaves special reasons to doubt, the testimony of others may show that the doubt is unfounded in the present case; certainty is thus attained, not by an accumulation of probabilities, but by the elimination of all motives for reasonable doubt.

2. Every witness is free to deceive. *Answer.* We can know from the conditions laid down that, in a given case, there was no actual attempt at deceit. Every man is free to commit suicide, and still it is certain that they will not all do so.

3. History contains many falsehoods. *Answer.* We do not defend all history.

4. At least, we cannot be certain of events long since past, because traditions are gradually changed. *Answer.* We can often be certain of such events, *viz.*, when we know that, in a given instance, the tradition was not changed; *e.g.*,

we know for certain that Christ died on a cross; that He rose again; that His disciples preached His Resurrection; that they had no motive to do so if He had not risen; that they laid down their lives in testimony of their sincerity, etc. (See this argument more fully treated in Schoupe's *Course of Religious Instruction*, p. 6.)

5. At least, no amount of testimony can make miracles certain; for it is physically certain that they never occurred, while it is at most only morally certain that they did. *Answer.* It is not physically certain that they never occurred; all that is physically certain is that nature has no power to produce them, but the Lord of nature has; and it is morally certain that they have occurred.
6. Still, plain men could not assure us that any particular miracle was performed; for they are not fit judges of what is miraculous. *Answer.* Sensible men, even though unlearned, can give reliable testimony about obvious facts, of which learned men will judge whether they were natural or beyond all natural power.

ARTICLE V. COMMON SENSE

156. There are many unwavering judgments or convictions common to all men of sound minds; all these may in a wider meaning be called dictates of **common sense**, *i.e.*, of that sense or intellect which belongs in common to all men. Some of these judgments proceed from the testimony of consciousness, others from the immediate intuitions of identity between two ideas, others from intellect and sense-perceptions combined, others are the obvious deductions of reason from intuitive principles and from the perceptions of the senses. But the term common sense, when considered as a special motive of certainty, is taken in a **more restricted meaning**; it comprises those judgments only, common to all sensible men, which are not immediately or intuitively evident, and which are concerned with the direction of moral conduct.

157. The following are **examples** of common-sense judgments: "There is a sovereign Lord and Master of all things," "His Providence directs human affairs," "We must reverence Him," "We must obey His laws," "He is the rewarder of good and evil," "Our soul will survive our body," "There are rewards and punishments after death," "Children must honor and obey their parents," "Friends must help each other," "Brutes may be killed for the use of man," "Men cannot be killed without just cause," etc.

158. To find how far the judgments of common sense are reliable, we must carefully consider whence they proceed and what evidence they give us of the objective truth. We should not suppose that they proceed from the universal consent of men; men agree because each of them individually forms the same judgments, but each one separately does not form them because all agree: **universality is a character, not a cause** of them.

159. True, we may accept a judgment on the authority of men if their united testimony is known to us; but we are then influenced by another motive of certainty, *viz.*, **common consent**. Thus, we may believe that man is fallen from an originally happier condition, because most nations have traditions to that effect; but the judgments of common sense are very different, being formed by each one independently of the consent of others.

160. Nor should we suppose that the judgments of common sense proceed, as Reid and his followers of the Scottish School maintain, from a mere **instinct to believe** certain truths. These writers wished to refute the Scepticism of Hume by the weapon of common sense; but they failed to establish the reliability of common sense by making it a mere blind instinct.

161. Whence, then, do the judgments of common sense derive their validity? From the evidence of the objective truth, which is presented with sufficient clearness to every sound mind. The objective truth in such cases is not intuitively beheld; we do not see immediately God's existence, nor the action of His providence; nor the soul as surviving the body, nor one being called virtue and another vice; but, starting with premises supplied by sense-perceptions and intellectual action, we go through an **obvious**

process of reasoning, of which the evident conclusions are the dictates of common sense. For instance, my senses seize upon the fact of the world's existence, my intellect sees there must be a reason for its existence; and, not finding that reason in the world itself, my mind concludes by an obvious process of reasoning that there is a first cause of the world, distinct from it; besides, since we also understand that a thing made belongs to its maker, we conceive the Cause of this world as the Sovereign Lord and Master of all things, etc. The judgments of common sense, therefore, are reliable, because they are evident conclusions derived from evident premises.

162. This motive of certainty is, then, not entirely distinct from the motives already considered; but it has a special **advantage**, viz., that it furnishes us with a summary proof of many most important propositions, the detailed study of which would require lengthy explanations.

163. **Thesis XIV.** *The judgments of common sense are true.*

Proof. According to the principles that underlie inductive reasoning (No. 47), any constant, uniform, and unvarying effect produced by any class of objects must proceed from the very nature of those objects; but these judgments are constant, uniform, and unvarying in man; therefore they have for cause the very nature of man: in other words, it is natural or essential to man to form these judgments. Now, it cannot be natural or essential to man to form false judgments; else universal doubt would follow, which, however, has been proved to be absurd; therefore these judgments are not false, but true.

164. **Objections:** 1. Such judgments may have come from tradition, education, prejudices, human laws, etc. *Answer.* The effect cannot exceed the cause: all these causes are variable among men, except just so far as they can be traced to the very nature of man. Besides, mere traditions, etc., would not impose on the consciences of all so stern a sense of duty as belongs to the dictates of common sense.

2. These judgments might come from the passions of men. *Answer.* On the contrary, our passions would rather prompt us to deny these very judgments.
3. Huxley says that religion has been developed from men's instinctive belief in ghosts. *Answer.* Huxley's theory is, as usual with him, a mere theory unsupported by valid proof. The very fact that so determined and able an opponent of religion cannot adduce any more plausible theory to account for the conviction of mankind, is a strong presumption in favor of our thesis.
4. Ignorant men cannot reason well enough to form such judgments; therefore they only receive them from others. *Answer.* The reasoning in question is not difficult, but easy and obvious; though it is not pretended that every mind can give a philosophic account of its own reasonings.
5. Even great geniuses do not always see those conclusions. *Answer.* Geniuses often strive after originality of thought more than after truth, in order to make themselves a name; proud minds disdain to follow the beaten path, simply because it is the beaten path. (See further *Metaphysics*, No. 225.)

[*] Physiologists now split up the touch into two senses, the tactual or skin sense and the muscular sense; the former perceives heat and cold, roughness and smoothness, etc.; the latter perceives resistance, exteriority, and extension. President McCosh describes it thus, quoting Wundt's *Beiträge zur Theorie der Sinneswahrnehmung*: "When we move our members we come upon external resistances. We observe that these resistances sometimes give way before our pressure; but we find at the same time that this takes place with very different degrees of facility, and that, in order to put different bodies in motion, we must apply very different degrees of muscular force; but to every single degree of the contraction-force there corresponds a determined degree in intensity of the muscular sensations. With these muscular

sensations, the sensations of the skin which cover our members of touch so continually mingle, that the intensity of these touch-sensations goes parallel to the intensity of the accompanying muscular sensations. We succeed in this way in connecting the degree of intensity of the muscular sensations in a necessary manner with the nature of the resistances which set themselves against our movement" (*Defence of Fundamental Truth*, p. 173).

[*] The objective reality of both sense-perception and intellectual perception is well expressed in the following words of Very Rev. I. T. Hecker (*Cath. World*, Oct., 1887, p. 6): "To see, if one is not a fool or a lunatic, is to see something. To act on any other view of human life, is to tend to imbecility. This law of objective reality applies to the entire realm of human activity. Life is real. 'Wherefore,' says St. Augustine on the Trinity (book ix), 'it must be clearly held that everything whatsoever that we know begets in us the knowledge of itself, for knowledge is brought forth from both, from the knower and the thing known.'"

[*] Hume writes in his *Treatise on Human Nature*: "I dine, I play a game of backgammon, I converse and am happy with my friends; and when, after three or four hours of amusement, I would return to these speculations, they appear so cold, so strained, and so ridiculous that I cannot find it in my heart to enter into them any farther" (vol. i. p. 467). Why did Hume and Fichte write books if they really believed that no readers existed?

[*] See *The Old Philosophy and Relativity of Knowledge*, by Henry Brown. (*The Month*, September, 1888.)

CHAPTER IV: THE ULTIMATE CRITERION OF CERTAINTY

165. The various sources of certainty, examined in the preceding chapter, furnish us *motives of certainty*, *i.e.*, reasons which move our intellect to elicit firm undoubting judgments. But these several sources do not give certainty except when properly applied to their proper objects; *e.g.*, our senses are not reliable except under the proper conditions. Hence, to have philosophic certainty in any given case, we must examine whether in that case all the necessary conditions have been complied with, and whether no reason remains to entertain any further doubt. For this purpose we need a rule or test by which to judge our very judgments; to ascertain beyond the possibility of error that they are conformable to the objective truth. This rule to judge by is called a **critterion** (κρίνω, I judge) of certainty.

166. We maintain that **the ultimate and universal criterion of certainty** is *the evidence of the objective truth*. By calling it *ultimate*, or *last*, we mean that, when this criterion is applied, it leaves no room for further inquiry concerning the existence of certainty; the ultimate criterion answers the last question that we can or need ask in examining the reliability of our knowledge. For instance, if I question myself how I know that bodies exist, I answer that I see and feel them, that by my senses I perceive their existence, and I cannot perceive that which does not exist as an object of perception; in other words, their existence is made

evident to me. If asked why I am certain that the Declaration of Independence occurred in the United States, I answer that I have learned it from reliable witnesses. And why do I believe these witnesses? Because my reason convinces me that their testimony is reliable. But why do I rely on my reason? Because it gives me evident conclusions from certain premises. I can question no further, because I can wish for nothing more evident than evidence.

By calling evidence the *universal* criterion of certainty, we mean that evidence is the crucial test in *all* cases of natural certainty; for it is with natural certainty alone, not with supernatural Faith, that Philosophy is concerned.

167. **What, then, is evidence?** It is important to understand it well, since all certainty is ultimately to be tested by this criterion. As stated above (No. 84), in the analysis of certainty we find that the firm adhesion of our mind to a truth, excluding all fear of error, is the *subjective* element of certainty; and the manifestation of the truth to the mind producing this firm adhesion, is the *objective* element. Now, such manifestation is the evidence of that truth. Evidence is to the mind what the visibility of a body is to the eye. That I may see a body, 1. It must exist; 2. It must give forth, or at least reflect, rays of light; 3. By that light it must impress itself on my eye. So, likewise, that a truth may be evident to me, 1. It must exist; 2. It must shine forth by its intelligibility, as all truth does, for ontological truth is the intelligibility of a thing; 3. Its light or intelligibility must be so presented as to force itself upon my intellect, making me see that the thing is so and must be so, cannot be otherwise. Hence a usual and correct **definition of evidence** is "such a manifestation of a truth as makes us see that the thing is so and cannot be otherwise," or, more briefly, "the manifest necessity of a truth." We do not mean here that the objective truth is *absolutely* necessary, but only that, *if* I see it, it *must* be, else I could not see it; the truth is *hypothetically* necessary.

168. Before Descartes' time, the fact that evidence is the ultimate criterion of certainty was scarcely disputed; but this writer has so confused the question of certainty that many

modern philosophers have assigned and defended false criteria. Descartes himself considers *clear ideas* as the great test or principle of certainty; while Reid, and the Scottish School generally, rely ultimately upon what they call *common sense*, by which they mean a blind instinct to consider a thing as true. But they should prove that such ideas or such an instinct is necessarily a pledge of the objective truth. In fact, these criteria are all internal; now, **no merely internal test** can settle the question whether the external things exist, since it is not necessarily connected with the objective truth.

Others look for the criterion in a merely external rule. Thus, De Lamennais, indignant that human reason had been adored in France during the Reign of Terror, strove to discredit reason and to show that we cannot trust our reason, but must test its reliability by comparing its judgments with the *common consent* of men. But how can we know that men are agreed upon any point, unless we can rely on our senses and our reason to ascertain whether men exist and what they say? **No merely external test** can be ultimate; for we need a further criterion to judge of its existence and its reliability.

169. **Thesis XV.** *The evidence of the objective truth is the ultimate and universal criterion of certainty.*

Proof. It is such if it fulfils the following conditions: 1. To be a *reliable test* of truth, the criterion must be inseparable from the truth, so that it cannot exist without the truth. 2. To be *ultimate*, it must leave no doubt to be removed by a further test. 3. To be *universal*, it must be applicable to every motive of natural certainty. Now, the evidence of the objective truth, and it alone, fulfils all these conditions: 1. It cannot exist without the truth, since it is the intelligibility of the truth itself made manifest to us. 2. It leaves no doubt to be removed by a further test, since it enables the mind to see the necessity of the truth manifested to it. 3. It is universal, for in no case have we real certainty unless we see that the truth is so and cannot be otherwise; but this supposes the evidence of the objective truth, and is nothing else than the perception of that evidence. Therefore this evidence is

the ultimate and universal criterion of certainty.

170. **Objections:** 1. We cannot be certain of anything unless we know that others agree with us. *Answer.* We deny this. In fact, we could not know that others agree with us if our own faculties were not reliable, capable of seeing the evidence of that agreement.
2. We cannot know that we are not insane except by ascertaining that others agree with us. *Answer.* This, too, we deny. Besides, even an insane man cannot err when he has evidence; but he has not evidence in the matters wherein he is insane; for evidence is a manifestation of the truth. It must, besides, be remembered that we claim certainty for man in his normal state, not for crazy, drunken, or sleeping men; and the very reason why these cannot be certain is because they cannot reflect sufficiently to examine their judgments: they imagine that things are so, but they cannot *see* that things cannot be otherwise.
3. Evidence is only in our minds. *Answer.* True evidence is the light of objective truth perceived by our minds; that which is not cannot be perceived.
4. We cannot be certain that we have evidence. *Answer.* We can, as our consciousness testifies.
5. Every man is fallible. *Answer.* Not about matters that are evident.
6. We have no infallible knowledge except through Revelation. *Answer.* We have; and we could not rationally trust a Revelation if we had no evidence that it was made: those who attack the reliability of our reason thereby attack the foundation of Faith.
7. God is the ultimate motive of certainty. *Answer.* He is the first being existing and knowing, but not the first being known to me: His existence is first ontologically, not logically, with regard to me.
8. Consciousness is the ultimate criterion of certainty; for

- it answers the last question asked about the motives of certainty. *Answer.* We trust our consciousness because it is evidently reliable, thus evidence is the ultimate criterion.
9. Evidence itself requires attention and examination. *Answer.* As motives of assent, no; as necessary conditions for the existence of subjective evidence, yes.
10. Evidence does not reach all kinds of truth; for instance, we have no evidence of what we learn from witnesses. *Answer.* We have no intrinsic evidence of it, but extrinsic, *i.e.*, we have evidence that the witnesses could not deceive us.
11. An evident conclusion may be false. *Answer.* Not if the whole reasoning is evident, premises and sequence.
12. It is the part of Protestantism to make one's own judgment the criterion of all certainty. *Answer.* Protestantism errs in making private judgment the criterion of supernatural certainty.
13. Many truths are certain, but not evident. *Answer.* Of natural truths all that are certain are either intrinsically or extrinsically, directly or indirectly, evident to man's natural powers.

Proof