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I.

ART AND SYMBOLISM IN CHURCH ARCHITECTURE.

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That there may be preciseness in our mutual understanding of the matters under discussion in this paper, it may be well, by way of introduction, to define our conception of the meaning of the various terms of the subject as above stated. When one attempts to find a definition of the word art, he is confronted by a bewildering maze of answers which convinces him, at least, that he has in mind a word of tremendous human interest. While we are thoroughly conscious of its inadequacy for every occasion, yet, for our present purpose, we are quite content with one of the simpler definitions of art as "the embodiment of beautiful thought in sensuous forms." By symbolism we understand "something that, not being a portrait, stands for something else and serves either to represent it or to bring to mind one or more of its qualities; especially so used to represent or suggest that which is not capable of portraiture." Architecture, according to the matter-of-fact dictionary, is "the science and art of designing and constructing buildings, especially with reference to adaptation to their ends and to beauty of form and proportion"; but according to the

IV.

THE DEVELOPMENT OF THE DIALECTICAL METHOD OF SOCRATES.

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As a matter of history, the dialectical or inductive method was discovered by Socrates, developed by Plato and Aristotle and perfected by Bacon.

Objections to the Socratic Authorship.

Many writers, however, are after the laurels of Socrates. (1) Some of them contend that *induction needed no discoverer*, as it has been practiced as long as the world stands by the wise and ignorant alike. It rests on the common faculties of human nature, they say, and men have always inferred the unknown from the known. Macauley,¹ *e. g.*, writes: "A plain man finds his stomach out of order. He never heard of Socrates or Lord Bacon, but he proceeds in the strictest conformity with their rules, and satisfies himself that mince pies have done the mischief. I ate mince pies on Monday and Wednesday, and was kept awake by indigestion all night. I did not eat any on Tuesday and Friday, and I was quite well. I ate very sparingly of them on Sunday, and was very slightly indisposed in the evening. But on Christmas Day I almost dined on them, and was so ill that I was in some danger. It cannot be the brandy which I took with them; for I have drunk brandy for years, without being the worse for it. Thus he reaches his conclusion, as surely as Socrates, without ever having heard his name." The answer to this is obvious. Induction being the process of all reasoning, of course, so long as men have reasoned they have reasoned inductively. But there is instinctive

¹ Macauley, *Hist. of England*, II, 60.

induction and there is methodical, scientific induction, and of the latter Socrates is undoubtedly the father. (2) Others assert that Socrates had *borrowed his method from the Eleatics*. Now we fully agree with Hegel² that "Socrates did not grow out of the earth like a fungus, but stands in definite continuity with his time." No doubt a man of his earnest and active intellect was likely first to manifest his curiosity as a learner; "to run after and teach the various discourses of others, like a Laconian hound,"³ before he struck out any novelties of his own. And as a matter of record, Socrates appears in Plato's dialogue, "Parmenides,"⁴ as a young man, full of ardor for the discussion of the Parmenidean theory, looking up with reverence to Parmenides and Zeno, and receiving from them instructions in the process of their crude dialectical investigation. From this very dialogue we are led to infer that he owes in part the powerful negative vein of his dialectics to "the double-tongued and all-objecting Zeno."⁵ But what a great difference exists between the methods of the two schools! There a crude method dealing with the most abstract notion, that of being, here a method beginning with the concrete, the particular and inductively leading up to abstract conceptions; with Socrates, a method purposely adapted and exclusively applied to *Man*, with the Eleatics, a crude method applied to *Nature*. (3) A third-class of critics denies that the Socratic method is strictly inductive in its character. Tissot⁶ regards it as more properly a process of pure generalization, "What is called his induction is nothing else than the preliminary operation of grouping around an idea all those ideas with which it

² Hegel, *Geschichte der Philosophie*, I, p. 90.

³ Plato, *Theat.*, 263.

⁴ Parmenides, 4. Here, in Soph. 127 and from Diog. L., II, 18, we learn that Zeno and Parmenides were among the teachers of Socrates. That he heard Archelaus is attested by Cicero in his *Tusc.*, V, 10. He also read Hieracitus, for Diog. L., II, 22, makes him say of that *σκοτεινος*, "What I did understand was excellent; I believe also that to be excellent what I did not understand."

⁵ Plato, *Parmenides*, 58.

⁶ Tissot, *Histoire de la Philosophie*, p. 93.

might be confounded, so as the better to distinguish it from them or to bring to notice what there is in common to them all." Lewes⁷ regards the Socratic method merely as reasoning from analogy. He says: "Many, from Socrates downwards, had insisted on induction, but the induction they conceived was that which Bacon⁸ calls 'inductio per enumerationem simplicem,' and which consists in 'ascribing the character of general truths to all propositions which are true in every instance which we happen to know of.'" This is an induction perpetually made in the loose latitude of common talk, and in the less pardonable laxity of common literature. It is the natural and instinctive action of the mind, and is thus distinguished from the circumspect, orderly method of science. This may be true; but "what is in a name?" Whether the Socratic method be properly called inductive, with Aristotle; or generalization, with Tissot; or reasoning from analogy, with Lewes: there can be little doubt as to what the chief peculiarity and value of that method really was. Socrates saw that to understand a thing it was necessary to grasp its essential idea, to make sure of having seized definitely and exactly that idea, and this could be done only by sharply and accurately defining it. In order to do this he compares and contrasts it with all similar ideas, notes the difference and resemblances and having the idea thus clearly before the mind, he proceeds to analyze it, to separate the individual and accidentals from the essential; thus he gets at its true nature and essence, what it is in itself. (4) Still others point to the undisputed fact that the distinctively Socratic method has little value for modern times. It is true that dialectics, or induction, as applied by Socrates, has been completely superseded by the processes of scientific investigation of to-day. Yet we can never be in communion with the vast and penetrating intellect of the great Athenian without acknowledging our indebtedness to him, and the question is surely pertinent: without the Socratic foundation, would we have to-day that mighty superstructure of science erected by

⁷ Lewes, *History of Philosophy*, I, 151.

⁸ Bacon, *Novum Organum*, II, 171.

our improved methods based on his? Of our induction he was undoubtedly (to accord to him the very least credit) the pioneer, creating the raw material for it, even if some will not regard him with Aristotle and the majority, as the real discoverer. Therefore, the majority of students do not think that Grote⁹ is going beyond the truth when, in his description of the death of Socrates, he exclaims: "Thus perished the 'parens philosophiæ,' the first of ethical philosophers; a man who opened to science both new matter, alike copious and valuable, and a new method, memorable not less for its originality and efficacy, than for the profound philosophical basis on which it rests. Though Greece produced great poets, orators, speculating philosophers, historians, etc., yet other countries, having the benefit of Grecian literature to begin with, have nearly equalled her in all these lines, and surpassed her in some. But where are we to look for a parallel to Socrates, either in or out of the Grecian world? The cross-examining elenchus, which he not only first struck out, but wielded with such matchless effect and to such noble purposes, has been mute ever since his last conversation in the prison; for even his great successor, Plato, was a writer and lecturer, not a colloquial dialectician. His life remains as the only evidence of how much can be done by this sort of intelligent interrogation, how powerful is the interest which it can be made to inspire; how energetic the stimulus which it can apply in awakening dormant reason and generating new mental power. However little that instrument may have been applied since the death of its inventor, the necessity and use of it neither have disappeared, nor ever can disappear. There are few men whose minds are not more or less in that state of sham knowledge against which Socrates made war; there is no man whose notions have not been first got together by spontaneous, unexamined, unconscious, uncertified association, resting upon forgotten particulars, blending together disparities or inconsistencies, and leaving in his mind old and familiar phrases, and oracular propositions, of which

⁹ Grote, *Life of Socrates*, 360.

he has never rendered to himself account; there is no man, who, if he desires vigorous and profitable scientific effort, has not found it a necessary branch of self-education, to break up, disentangle, analyze and reconstruct these ancient mental compounds; and who has not been driven to do it by his own lame and solitary efforts, since the giant of the colloquial elenchus no longer stands in the market place to lend him help and stimulus." Beautiful words, indeed, and what is more, true words!

Plato's Doctrine of the Ideas.

While Socrates discovered the new world of philosophy, it was reserved for his two great pupils, Plato and Aristotle, to conquer and explore it. Speaking first of Plato, it is evident that not only the basis but also the logical and objective unity of his system is found in his famous and unique hypothesis of the ideas. (1) The reasoning which led Plato to his idealistic method was as follows: In his endeavor to systematize the profound thoughts of his great teacher, Plato soon perceived that scepticism would envelop the human mind if it were not possible to find some foundation for absolute affirmation, for without this everything in our conceptions would be subjective, and therefore fluctuating. But all that we find in our minds are merely: (a) *Sensations*, which in themselves are purely relative to the individual who experiences them, varying with individuals and with different successive states of the same individual. Also the objects to which they relate vary perpetually. (b) By generalizing these impressions of sense we form *notions* representing the summary of a whole class of sensations and perceptions. But also these notions partake fundamentally of the character of variableness essential to the sensations in which they have their root.¹⁰ Hence, in order to arrive at objective truth and certainty we must find for our reasoning a basis of eternal realities which alone are true existences, because they are independent of human reason, external to it and merely manifested in it by their being imprinted, by

¹⁰ They are εἶδωλα of true being. See Plato, *Republ.*, VI, 508.

the eternal architect, on crude matter and recognized by human reason in all concrete forms, actions and words. The *instrument* by which the ideas are apprehended is the method of dialectic; not, however, that simple discipline it was with Socrates, but by "the Science of the Immutable." We apprehend the Immutable, Plato says, through the instrument of division, analysis and definitions. By division we separate the genus into its species, the whole into its parts; *analysis* rises from the objects of sense to "intelligibles," from demonstrable propositions to axioms, from hypotheses to experiences; the *definition*, finally, expresses the genus of the thing to be defined, thus distinguishing it from all others by adding to it its specific difference. To these definitions, which alone, according to Platonism, were "true existences" and the "only realities," Plato gave a separate existence and called them ideas, as Aristotle testifies.¹¹ The paradox, how an objective existence and true reality can be predicated of mere definitions separated from the thing defined, will vanish if we remember that definitions were to Plato what "universals" or "general ideas" were to later metaphysicians.¹² In this important point, then, Plato separated himself completely from his master, Socrates. For Aristotle, after speaking of the Socratic Method of Induction and Definition, says: "But Socrates gave neither to General Terms nor to Definitions a distinct existence."¹³ We must, however, bear in mind that it required simply one small step from the Socratic notion that true being belonged only to conceptions to the Platonic objectivizing of these true beings into things.¹⁴

¹¹ Besides *idéa*, Plato employs a number of other terms to designate his famous principle of philosophy, such as, *εἶδος νοητόν*; *γένος*; *ὄντως ὄν*; *λόγος*; *οὐσία*; *αὐτὸ καθ' αὐτό*; *ὅ τι ἐστίν*, etc.

¹² Lewes, *History of Philosophy*, 212.

¹³ *Metaph.*, XIII, 4: ἀλλ' ὁ μὲν Σωκράτης τὰ καθόλου οὐ χωριστὰ ἐποίησεν οὐδὲ τοὺς ὁρισμοὺς.

¹⁴ See Schwegler, *Hist. of Phil.*, 51. In this sense Aristocles in *Euseb. Praep.*, XI, 3, could assert that Socrates himself began the investigation of the doctrine of the ideas.

Definition of the Platonic Ideas.

The uniqueness and difficulty of the conception itself, as well as the fact that the ideas form the basis, the inner life and the outward form of the Platonic system of philosophy, necessitates a more minute description of what Plato regarded as the essence of the ideas. "They are," writes Schwegler,¹⁵ "the common element in the manifold, the universal in the individual, the one in the many, the fixed and permanent in the mutable. In a subjective sense, they are principles of cognition, certain in themselves and inderived from experience, the inborn regulatives of all our knowledge. In an objective sense, they are the immutable principles of existence of the world without; incorporeal, indivisible, simple unities; that are present in whatever may in any way prove itself self-subsistent." These Universals exist per se. They are not mere conceptions of the mind, they are entities; and our perceptions of them are formed in the same manner as our perceptions of other things. Thus Plato transformed our conceptions into perceptions—*i. e.*, he projected our ideas out of us, and then looked at them as images, as objective entities. These he maintained to be the only real existence; they were the noumena of which all individual things were the phenomena; they were the real things, and the visible objects were only copies of them. Aristotle, in a memorable passage emphasizes this peculiar view of Plato, saying: "Plato followed Socrates respecting definitions, but, accustomed as he was to inquiries into universals,¹⁶ he supposed that definitions would be those of intelligibles (*i. e.*, noumena), rather than of sensibles (*i. e.*, phenomena); for he regarded it as impossible to give a general definition to sensible objects, because they are always changing. Those intelligible essences he called ideas; adding that sensible objects were different from ideas, and received from them their names; for it is in consequence of their participation *κατὰ μέθεξιν* in ideas that all objects of the same genus receive the same

¹⁵ Schwegler, *Geschichte der Philosophie*, 95.

¹⁶ διὰ τὸ ζητῆσαι περὶ τῶν καθόλου.

name as the ideas."¹⁷ Reducing Plato's exuberant language to our present modes of philosophical expression, he means to emphasize that, *e. g.*, there existed somewhere the abstract man no less than the concrete men; the latter were men only in as far as they participated in the ideal man. No one will dispute that we have a conception of a genus—that we do conceive and reason about man quite independently of Smith or Brown, Peter or Paul. If we have such a conception, whence did we derive it? Our experience has only been of the Smiths and Browns, the Peters and Pauls; we have only known men. Our senses tell us nothing of man. It must, therefore, be reason and reflection which enables us to contemplate man in the abstract. Following this method we find certain characteristics common to all men, and not only common to them but necessary to their being men. These we abstract from the particular accidents of individual men and form them into universals, which according to Plato are the ideas of the group and have an existence separate from the particular instances.

One of the clearest illustrations of what Plato understood by the term "idea" is found in his *Republic*.¹⁸ There he represents them as the models or archetypes according to which the deity fabricates all things. He says: "There are many chairs and many tables; but there is only one idea of a chair and one idea of a table. And the artificer who makes each of these pieces of furniture looks to his idea of a chair or a table, and so makes the chairs and the tables which we use. The man does not make the idea, he only copies it. Then there are painters; but also they do not make the real chair; they make an apparent chair, a painted chair, a copy of the carpenter's copy. We have, then, three kinds of chairs. The first is the essential ideal one, which God himself makes; then the one which the carpenter makes, and then the one which the painter makes. The one made by God is single, unique; there are not and will not be more than one. There cannot be two or more."

¹⁷ Aristotle, *Metaphysics*, I, 6.

¹⁸ Plato, *Republic*, X, 50.

And where are all these various ideas? In heaven, answers Plato, in the presence of the gods.

The Main Object of the System of Ideas.

From the previous discussion it is plain that the ideal theory originated in Plato's desire to express the essence of things, what each thing veritably is, and to comprehend the real world as an intellectual world organized within itself. Aristotle expressly assigns this desire of scientific cognition as the prime motive of the Platonic theory of ideas. "Plato," he says,¹⁹ "came upon his ideal theory because he was convinced of the truth of the Heraclitic view of the things of sense, and regarded them as in an eternal flux. But if, Plato reasoned, there is to be a science or scientific knowledge of anything, there must, together with the things of sense, exist other entities possessed of stability; for there can be no science of the fleeting." The Platonic ideal theory is according to this the common product of the Socratic method of notional foundation (universalization) of the Heraclitic principle of an absolute becoming, and of the Eleatic doctrine of an absolute being. Plato owes to the first the idea of notional knowledge; to the second the conception of the sensuous world as mere becoming; to the third the assumption of a sphere of absolute reality.

The Illustration of the Cave-Dwellers.

For the purpose of presenting the entire Platonic system of philosophy clearly before our mind, we cannot do better than cite in extenso the celebrated similitude in which Plato himself allegorizes "the conversion of the mind from the world of sense to the world of ideas." It contains the most exalted conception of the true object of philosophy, expressed in the most beautiful language. "Suppose," he lets Socrates say,²⁰ "a set of men in a subterraneous cavern, which opens to the day by a long straight wide passage, and that they have been kept in

¹⁹ Aristotle, *Metaphysics*, XIII, 4.

²⁰ Plato, *Republic*, VII, 527.

this cavern from childhood, fettered so that they cannot turn even their necks, but with their heads fixed so that they can look only towards the lower end of the cave. Suppose, further, that there is a great fire lit opposite to the mouth of the cavern (so as to throw the shadows of objects on the lower end of the cave), and that there is a road which runs past the cavern between the fire and the captives. Suppose, too, that along this road runs a low wall, like the partition over which puppet-showmen exhibit their figures. And now suppose that along this wall, and so as to be shown above it, pass men and other figures, some silent, some speaking. These captives exactly represent the condition of us men who see nothing but the shadows of realities. And these captives, in talking with one, would give names to the shadows as if they were realities. And if, further, this prison-house had an echo opposite to it, so that when the passers-by spoke the sound was reflected (from the same wall on which the shadows were seen), they would, of course, think that the shadows spoke. And, in short, in every way they would be led to think there were no realities except these shadows. Now, if one of them were loosed and made to walk towards the light, he at first, would be pained by the glare, and unable to see clearly. He would be perplexed if he were told that what he saw before were nonentities, and that now he saw the reality; and even if any of the passers-by were made to say what he is, he would still think that what he saw before was more true than what was shown to him now. "But if he were dragged to the light he would be still more pained and more angry, and be at first so blinded that he would not be able to see real objects. At first he would be able to see shadows, then the reflected images of objects, and then objects themselves; and when he recollected the illusions of his first abode, he would naturally congratulate himself upon the change, and pity those he had left there. And if there were among them any honors and rewards given to him who was most sharp-sighted in scanning the passing shadows, he would not be likely to covet these honors and rewards. He would rather say with

the shade of Achilles in Homer, that it is better to be a day laborer in the region of life and day, than the greatest monarch in the realm of shadows. He would rather suffer anything than live as he did before. And if such a one should re-descend into the cavern, his eyes would be purblind, coming out of sunshine into darkness. And if he had to discuss those shadows with those who had always remained there captive he would be laughed at, and they would say that his eyesight was ruined, and that it was not worth anybody's while to go up out of the cave. And if any one tried to set them at liberty, and to lead them to light, they would, if they could get him into their power, kill him. We must liken the visible world to the dark cavern, and the fire which makes objects visible to the sun. The ascent upwards, and the vision of the objects there, is the advance of the mind into the intelligible world; the idea of the Supreme Good is seen last of all, and with the greatest difficulty; and when seen, is apprehended as the cause of all that is right and excellent. This idea produces in the visible world light; in the intellectual world it is the source of truth, and of the intuition of truth. It is not to be wondered at that those who have advanced into that higher region are not willing to be involved in the affairs of men; their souls wish to dwell forever in the upper region. Nor is it a wonder if any one coming down from divine contemplations to the wretched concerns of men blunders and is laughed at; before his eyes are accustomed to the surrounding darkness, he is compelled, it may be, to fight in courts of justice, or elsewhere, the battle, not about justice, but about the shadows of justice, or the images which make the shadows; he is compelled to wrangle about the way in which these shadows are apprehended by those who never had a view of justice herself."

The influence of Plato's notion of the ideas has never completely died out. From Hebr. 9: 24, we learn that it even crept into the reasoning of the Alexandrian writer of that epistle. The tabernacle in the wilderness was to him simply

“a pattern of the true,” i. e., the ideal which was shown by God to Moses.²¹

Criticism of Plato's Ideas.

Plato's hypothesis of the ideas is open to two principal objections. (1) It is vague in conception and his statement of it lacks scientific precision. In spite of all his efforts, Plato did not succeed in making his meaning quite clear. Besides the main difficulty inherent in that grand conception itself, there are several other reasons that partly account for this obscurity. (a) All of Plato's works are written in the form of dialogues, often figurative and mythical in expression.²² He is the most exuberant of all philosophical writers, “the myriad-minded Shakespeare of Philosophy.”²³ Cicero²⁴ says of Plato's language: “If Jupiter were to speak in the Greek language, he would borrow the style of Plato.” Aristotle says of his teacher's language, that he wrote in “a middle species of diction between verse and prose.” (b) Moreover, this concealment seems to have been partly intended for the purpose of stirring up his pupils' minds to clear thinking. He writes²⁵ “It would be to no purpose to lay open to mankind at large the doctrines of philosophy which are adapted only to the comprehension of a few intelligent persons who from imperfect hints are capable of conceiving their full import. Similar expressions are recorded in Mt. 13: 9–18, and Luke 8: 10, where Jesus says that one of his reasons for speaking in parables was to hide the truth from the unreceptive hearers. (2) But the gravest objection is that *Plato materialized his ideas*. Dr. George Fullerton says:²⁶ “When Plato looked for the object of the general name, for the x contained in a class of similar objects, he

²¹ Farrar, *Cambridge Greek Test* (Hebr.), p. 122.

²² Brandis, *Socrates*, p. 53: “Darauf beruht das Mythische des Platonischen Systems, dass es das Verhältniss des Sinnlichen zum Uebersinnlichen zwar formell festzustellen, real aber nur der Phantasie, nicht aber dem Verstande zu verdeutlichen fähig ist.”

²³ John Marshall, *Greek Philosophy*, p. 135.

²⁴ Cicero, *De Officiis*, I, 1; *Epistolae*, VII, 3.

²⁵ Plato, *Republic*, X, 5.

²⁶ Geo. Fullerton, *Sameness and Identity*, p. 92.

created a new object, distinct from and apart from all the others. He is very vague in his statements, and he was probably quite as vague in his thought; but I cannot see how any one familiar with the *Phædrus*, the *Republic*, the *Timæus*, the *Symposium* and the *Parmenides*, and familiar with Plato's concrete way of thinking in images, can avoid coming to the conclusion that the idea was to him predominantly an object, an individual—a vague and inconsistent object, if you please, but still an object. But an x is in no sense a universal. . . . If the idea may be considered as apart from objects, it is an object in so far not essentially differing from the others. Again, the Platonic idea is an object but not to be put upon the same plane with other objects. They suffer change, while it is immutable; they are perceivable by the senses and it is not. The objects of sense and the idea are in different worlds; and though we cannot accuse Plato of drawing the distinctions of the modern hypothetical realist, he has certainly given us a suggestive parallel to the Lockian ideas and "real" things. The trouble has arisen out of his difficulty in keeping an abstraction abstract; he has turned it into a concrete, and finding in the world of sense no place for this concrete, this new individual, he has given it a world of its own. Whatever this object in this world apart may be, it is certainly not what is common to individuals in the world of sensible things."

The Method of Aristotle.

Aristotle was a philosopher whose extensive and penetrating genius entitles him to immortal fame and whose doctrines have been transmitted through various channels to the present day and have been surprisingly interwoven with almost the whole circle of the sciences. His motto was: *amicus Plato, amicus Socrates, magis tamen amica veritas.*

The best way to arrive at a true understanding of Aristotle's own method is to consider first his criticism of Plato's principles. He strenuously objected to the doctrine of ideas on the following grounds: First, such a doctrine is a mere doubling

of sensible existences; the ideas are conceived as merely attenuated material objects. Aristotle calls them *αἰσθητὰ αἰδία*, that is, everlasting sensibles. Secondly, the ideas, not being in the things, cannot be the causes of motion or change, and therefore serve no purpose as explanatory of the phenomena of change. Thirdly, not being in things, they cannot help us to any knowledge of things, and are therefore of no use as explanatory of the phenomena of knowledge. Fourthly, they are contradictory, inasmuch as they are represented as the essence of things, and yet as existing separate from things, as if it were possible that the essence of a thing could be separated from the thing of which it was the essence. Fifthly, the doctrine of ideas is a poetical fancy, and that it is merely by a metaphor that things are said to be copies of ideas. And, sixthly, supposing the ideas to exist, they and the things which are their copies would require to be subsumed and reduced to unity under a higher idea, which is absurd; for example, if the idea man exists as something apart from actual men, we must have a higher idea to embrace both, the ideal man and the actual men. This objection is called the argument of the *τρίτος ἄνθρωπος*, the third man; the other two being the idea of man and the reality of man. This argument, however, had been foreseen and stated by Plato himself. All these objections are offshoots from Aristotle's leading objection to the Platonic assertion, that the ideas are existences apart (*χωρίς*) from the things of which they are said to be the models.

Statement of the Aristotelian Method.

But although Aristotle contested the Platonic doctrine, he advanced an ideal theory of his own. He was far from holding that ideas were mere subjective conceptions, the fabrications of our own minds. He held that there was a correlative reality in the object answering to the conception in our minds, and this correlative reality he calls the form or essence—*μορφή*. This essence is not an object of sense, but of intellect. It is, in fact, the Platonic idea under another name. So that we

may say that Aristotle adopted the Platonic doctrine, with this modification, that whereas Plato promulgated a doctrine in which ideas were represented as existing by themselves, and apart from things, Aristotle represented them as implanted in things and as forming their most essential constituent. The idea, for example, considered as the "one" does not exist together *with* the many, but it exists *in* the many. Unity is essential to multiplicity. If we view ideas as laws, we might say that, while Plato regarded the laws as subsisting by themselves, and as constituting a world apart, Aristotle regarded them as inseparably united with the things of which they were the laws. The genus has no existence apart from the individuals, yet although the genus or universal has no existence in and for itself, but only an existence in individuals, it is nevertheless the most significant, and in its nature the most knowable, and the proper object of knowledge. There can be no knowledge without it. Summarizing Aristotle's position, then, we find that he follows the posterior method, beginning with the sensible, the individual, the many, in order to proceed to the *one*, from τὰ καθ' ἕκαστα to τὰ καθ' καθόλου. He agrees with Plato in the principle that there is no science except of the general, the concept; but he insists that this general, sought by Socrates, is found only in the individual, *in re*, not *ante rem*.²⁷ The universal for him is simply that which is common to many and can be predicted of them all. He thus founded the ideal on the concrete, the universal on the individual. Pointing out the difference between the two men, Schwegler²⁸ says: "He proceeds, not synthetically and dialectically like Plato, but almost exclusively analytically and regressively, that is to say, passing over backwards from what is concrete to its ultimate grounds and principles. If Plato took his stand on the idea, in order from that position to elucidate and explain the data of experience, Aristotle on the contrary, takes his stand on these data in order to discover in them and demonstrate in them the idea. His method, therefore, is induction, that is, the

²⁷ See also Aristotle, *Metaph.*, I, 9; XII, 14, 7.

²⁸ Schwegler, *History of Philosophy*, p. 96.

derivation of general inferences and results from a sum of given facts and phenomena, while his exposition is the usual *raisonnement*, a dispassionate estimate of facts, phenomena, circumstances, and possibilities. He bears himself mostly only as a thoughtful observer. Renouncing any expectations of universality and necessity in his conclusions, he is contented to have established an approximate truth, and is satisfied to have reached the greatest possible probability. He frequently declares that science relates not merely to the immutable and necessary, but also to what generally happens; beyond its province, he says, there is only the contingent. Philosophy has consequently for him the character and the value of a calculation of probabilities, and his mode of exposition assumes not infrequently only the form of a dubious counting up. Hence no trace of the Platonic ideals. Hence, his dislike to imaginative flights and poetic figures in philosophy, a dislike which on one hand led him, indeed, to a fixed philosophical terminology, but was the occasion, on the other, of a frequent misinterpretation of those who had preceded him. Hence, too, in the sphere of action his invariable submission to the existent fact.

Objection to Aristotle's Method.

One of the most important objections to Aristotle's position is stated and answered by Dr. Fullerton²⁹ as follows: "It may be objected that putting x in a place individualizes it as much as putting it out of a place. This is quite true if the 'in' is taken locally, taken as it is when we speak of a man as being in one room, rather than in another. The x in one object is not identically the x in another object. We do not get the universal x in the abstract until we lose the distinctions 'in the one object' and 'in the other object.' If, however, by the statement that the universal is in the objects, one mean merely that the universal is that element x which, combined with certain others, forms a total which is known as that, but taken by itself, contains no distinction of this and that; if this

²⁹ Geo. Fullerton, *Sameness and Identity*, p. 93.

is all that is meant by the 'in,' there is no objection to the use of the statement, and it is strictly true. The x element is a part of each of the objects, but, until some addition is made to it, it is not the 'x in this object,' or the 'x in that object'; it is what they have in common. The 'in common' means just this."

An Orderly Development of the Dialectical Method.

Our discussion has enabled us to trace an unbroken progress in the development of the inductive method. *Socrates* was the first who asserted that the standard of human thought and action lay in a knowledge of conceptions and he taught his followers to acquire this knowledge by dealing with all notions critically. *Plato* concluded at once that objective conceptions were alone real in any true sense, and that consequently only a derivative reality belonged to other things. This view, as we saw, he upheld by a more searching analysis than *Socrates* pursued and developed it into a real science. *Aristotle* arrived at the conclusion that conceptions are *in* things constituting their real essence and cause of motion. By an exhaustive analysis of the scientific method he showed how conceptions were to be formed and applied to things and by a most comprehensive inquiry into the separate parts of the universe he examined the laws of conceptions and their connections. "It is thus one principle," says *Zeller*,³⁰ "represented at different stages of growth, by *Socrates*, *Plato*, and *Aristotle*." *Socrates* may be called the swelling germ, *Plato* the rich blossom, and *Aristotle* the ripened fruit of Greek philosophy in general and of the scientific method under consideration in particular.

A still more lucid résumé of the achievements of these three great men on the special field under our present consideration, is found in *Dr. Fullerton's*³¹ often quoted work, where he says: "The object of the general term or class name is in question. *Plato*, distinguishing between the universal and the individual,

³⁰ *Zeller, Die Philosophie der Griechen*, 390.

³¹ *Fullerton, Sameness and Identity*, p. 23.

between man and men, thought it necessary, according to Aristotle, who has not, I think, done him injustice, to assume an object for the universal outside of and apart from all the individuals forming a class. The ideal is a real thing, the real thing in which the individuals participate, or of which they are copies; but it is not itself to be found in any or all of them, except, so to speak, in a figurative or metaphorical way. Aristotle, finding no reason to assume a new individual, for so he regarded the Platonic idea, placed the universal in the individuals composing the class. Certain of the schoolmen emphasizing the distinctions between real things and mental representations, maintained that only individuals have real existence, and asserted either that universals exist merely as peculiar combinations of mental elements which serve to think the objects forming a class, or that the universals is the word, which may be applied indifferently to many individuals of one kind. In these views we have the *universalia ante rem*, the *universalia in re*, and the *universalia post rem*; or extreme realism, moderate realism and nominalism in its two forms." Here, then, is the birth of the world-famous and never-dying fiery dispute between realism and nominalism in philosophy. The realists maintain that every general term, such as man, virtue, love, etc., has a real and independent existence, quite irrespective of any concrete individual determination, such as Smith, benevolence, etc. The nominalists, on the contrary, maintain that all general terms are but the creations of the mind, designating not distinct entities, but being merely used as marks of aggregate conceptions.

The Perfecting of the Inductive Method by Bacon.

Though Socrates and Lord Bacon lived nearly two thousand years apart, yet they have much in common. Both open new periods in the history of philosophy; both look back on centuries of sterility in the search for truth and forward to the awakening and quickening of the spirit of investigation; both derive their eminence in philosophy not from any positive content but

from a scientific method; both employ as their method induction. For our present purpose we deem it sufficient (1) to give a brief outline of Bacon's method; (2) to indicate the points of resemblance; and (3) to mark the differences of both methods.

An Outline of the Baconian Method.

"Whence can arise," Bacon says,³² "such vagueness and sterility in all the physical systems which have hitherto existed in the world? It is not from anything in nature itself; for the steadiness and regularity of the laws by which it is governed clearly mark them out as objects of precise and certain knowledge. Neither can it arise from any want of ability in those who have pursued such inquiries, many of whom have been men of the highest talent and genius; it can therefore arise from nothing else but the perverseness and insufficiency of the methods which have been pursued. As things are at present conducted, a sudden transition is made from sensible objects and particular facts to general propositions, which are accounted principles. But the way that promises success is the reverse of this. It requires that we should generalize slowly, going from particular things to those that are but one step more general; from those to others of still greater extent, and so on to such as are universal. By such means we may hope to arrive at principles, not vague and obscure, but luminous and well-defined, such as Nature herself will not refuse to acknowledge."

Bacon further explains his method in these words: "A syllogism consists of propositions, propositions of words, and words are the signs of notions; therefore, if our notions, the basis of all, are confused, and overhastily taken from things, nothing that is built upon them can be firm; whence our only hope rests upon genuine induction." He objects, therefore, to our proceeding to deduce from an axiom not accurately and inductively obtained, consequences which may very well be contained in the axiom, although having no relation to the truth of things.

³² Bacon, *Novum Organum*, I, 1.

Bacon enumerates as the causes of error a number of "idols," as he terms them, *i. e.*, false appearances (*εἰδωλα*), which must be discarded. There are, first, the idols of the tribe,—the causes of error founded on human nature in general; secondly, the idols of the den,—those which spring from the peculiar character of the individual; thirdly, the idols of the forum,—those which arise out of the intercourse of society and from language; fourthly, the idols of the theater,—the deceptions which have arisen from the dogmas of different schools. After this, Bacon proceeds to describe the nature of induction. In the first place, a history of the phenomena to be explained must be prepared, including all their modifications, varieties and the experiments instituted for the sake of discovery. In the next place the cause of these phenomena must be discovered, which Bacon calls the form. But in order to inquire into the cause of anything we must begin with the exclusion of things not belonging to it. This is the first part of the process. Negative instances, or those where the form is wanting, must also be collected. After many exclusions and only a few principles being left, one of these is to be assumed as the cause and by reasoning from it synthetically, we are to try whether it will account for the phenomena. There is, however, a great difference in the value of facts. This led Bacon to his consideration of "prerogative instances," or the comparative value of facts as means of discovery. He enumerates twenty-seven different species, the most important of which are: first, *instantiæ solitariæ*, which are either examples of the same quality existing in two bodies, otherwise different, or of a quality differing in two bodies otherwise the same; secondly, the *instantiæ migrantes*, which exhibit some property of the body passing from one condition to another; thirdly, the *instantiæ ostensivæ*, which are the facts which show some particular property in its highest state of power and energy; fourthly, *instantiæ comitatus*, which are examples of certain qualities which always accompany one another.³³

³³ Bacon, *Advancement of Learning*, V, 2.

Resemblance of Both Methods.

Notwithstanding the differences of principles and tendencies, the Socratic method is closely akin and homogeneous to the Baconian. In much the same manner, *e. g.*, does Socrates find his "concepts," as Bacon the "laws" of things. The Socratic method derives the mental conception from immediate representations and Bacon, from natural phenomena, derives his "law." In both cases the course of reasoning is inductive, beginning with particulars, and ascending to the universal. In both cases the induction is of a kind that proceeds slowly and gradually ("per gradus continuas") to the universal—with Socrates to conceptions, with Bacon to laws; with Socrates to the original, with Bacon to the copy of nature; with Socrates to the final, with Bacon to the efficient causes of things. Also, the course of induction is in both cases pursued in the same way, namely, through negative instances. Socrates applies the test of a negative instance to all definitions, so that these are continually rectified and purified by contradictory instances, which in his case are not natural phenomena, but definitions or propositions. In the same manner, Bacon uses the negative instance as a test, to discover whether the conditions of natural phenomena that present themselves are essential or not. Socrates makes experiments with conceptions, as Bacon with things. With both of them, the mode of proof consists in so testing that which is to be proved as to ascertain whether, in every respect, it will agree with their hypothesis; in other words, whether it will endure the ordeal of negative instances. Thus, both make experiments; the one logically, the other physically; the one to discover the true concept among our notions, the other to find out the true laws in nature. They proceed by similar roads, viz., per veram inductionem, to opposite goals. Bacon himself perceived this affinity, and it made him prefer Socrates and Plato to Aristotle. "An induction³⁴ that is to be useful for the discovery and demonstration of the sciences and arts should separate nature by proper rejections and exclusions,

³⁴ Bacon, *Novum Organum*, I, p. 80.

and then, after a sufficient number of negatives, come to an affirmative conclusion. This has not yet been done, nor even tried, except by Socrates, who certainly makes use of this form of induction to some extent, for the purpose of sifting definitions and ideas."

The Socratic induction leads to a world of ideas, which is formed by the way of continued abstraction, the Baconian induction leads to a copy of the real world, by the way of continued experience. The Socratic abstraction consists in the analysis of conceptions; the Baconian in the analysis of things, —an anatomical dissection of bodies, the "dissectio naturæ," which Bacon requires in lieu of the Socratic abstraction.

Wherein Both Methods Differ.

While Grote,³⁵ in his admirable sketch of Socrates, and Kuno Fischer³⁶ point out the resemblance of the Socratic and Baconian methods in spirit and aim, Lewes³⁷ denies it almost in toto. A middle path between the extremes is the safest, namely, to acknowledge certain points of resemblances and concede vital differences. Of the latter three may be pointed out. (1) There is a difference in the *aim*. The aim of Socrates was confessedly to withdraw the mind from contemplating the phenomena of nature and to fix it on the mind's phenomena. Bacon's aim was just the reverse of this; he exhorted men to the observation and interpretation of nature, and denounced all attempts to discover the operations of the mind. If Socrates pushed too far his contempt of physics, Bacon pushed too far his contempt for psychology; the exaggeration was, in each case, produced by the absurdities of contemporaries. Most readers will agree with Grote in this, that Socrates "sought to test the fundamental notions respecting man and society in the same spirit in which Bacon approached those of physics," and that the idea which Socrates described in his way as the "conceit of knowledge without the reality" is identical with

³⁵ Grote, *History of Greece*, VIII, 612.

³⁶ K. Fischer, *Fr. Bacon*, p. 162.

³⁷ Lewes, *History of Philosophy*, p. 214.

what Bacon designates as "the aberrations of the intellect left to itself." Exactly so! But did it escape Grote that he, in trying to show the resemblance of both, established the great difference with respect to their aim? There it was man and psychology; here it is nature and physical science. (2) There is a difference in the *process*. We may assume three kinds of induction: natural induction carried on instinctively by every reasoning being; the Socratic induction, which was a very simple discipline—merely a reasoning by analogy; the Baconian, strictly scientific induction. It was, says Lewes,³⁸ Bacon's constant endeavor, as it has been the cause of his enduring fame, to teach men the real object of science, and the scope of their faculties, and to furnish them with a proper method whereon the faculties might be successfully employed. He thus not only stands clearly out in history as the exponent of the long-agitated antagonism to all the ancient and scholastic thinkers, but also as the exponent of the rapidly increasing tendency towards positive science. Bacon may rightly be called the father of experimental science, with its elaborate system of gradual verification. (3) There is a difference in the *results*. The Socratic method is seen developed in Plato and Aristotle, the Baconian in Newton and Faraday. Systems so metaphysical as those which came out of the Socratic teaching must have been the product of a very different method from that which led to modern science.

Hegel's Estimate of Bacon and Socrates.

In his lectures on philosophy³⁹ Hegel presents the following interesting comparison of the two great men under consideration. He writes: "As Bacon has always had the praise as the man who directed knowledge to its true source—experience, so is he in effect the special leader and representative of what in England has been called philosophy, and beyond which Englishmen have not yet quite advanced; for they seem to constitute

³⁸ Lewes, *Hist. of Greece*, VIII, 4.

³⁹ Hegel, *Vorlesungen ueber die Geschichte der Philosophie*, I, 95.

that people in Europe, which, limited to understanding of actuality, is destined, like the huckster and workman class in the state, to live always immersed in matter, with daily fact for their object, but not reason. But Socrates stands before us, a finished work of classic art, who has brought himself to this height. In a work of art every feature is designed to bring out one idea, to represent one character, that it may constitute a living and beautiful creation; for the highest beauty consists in the most complete development on all sides of individuality according to one inner principle. Through his principle Socrates gained an influence still active in religion, science, and jurisprudence."

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