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BEGINNINGS

OF

A FORMAL PHILOSOPHY

BY

JOHN J. VAN NOSTRAND

CHICAGO, ILLINOIS

1892

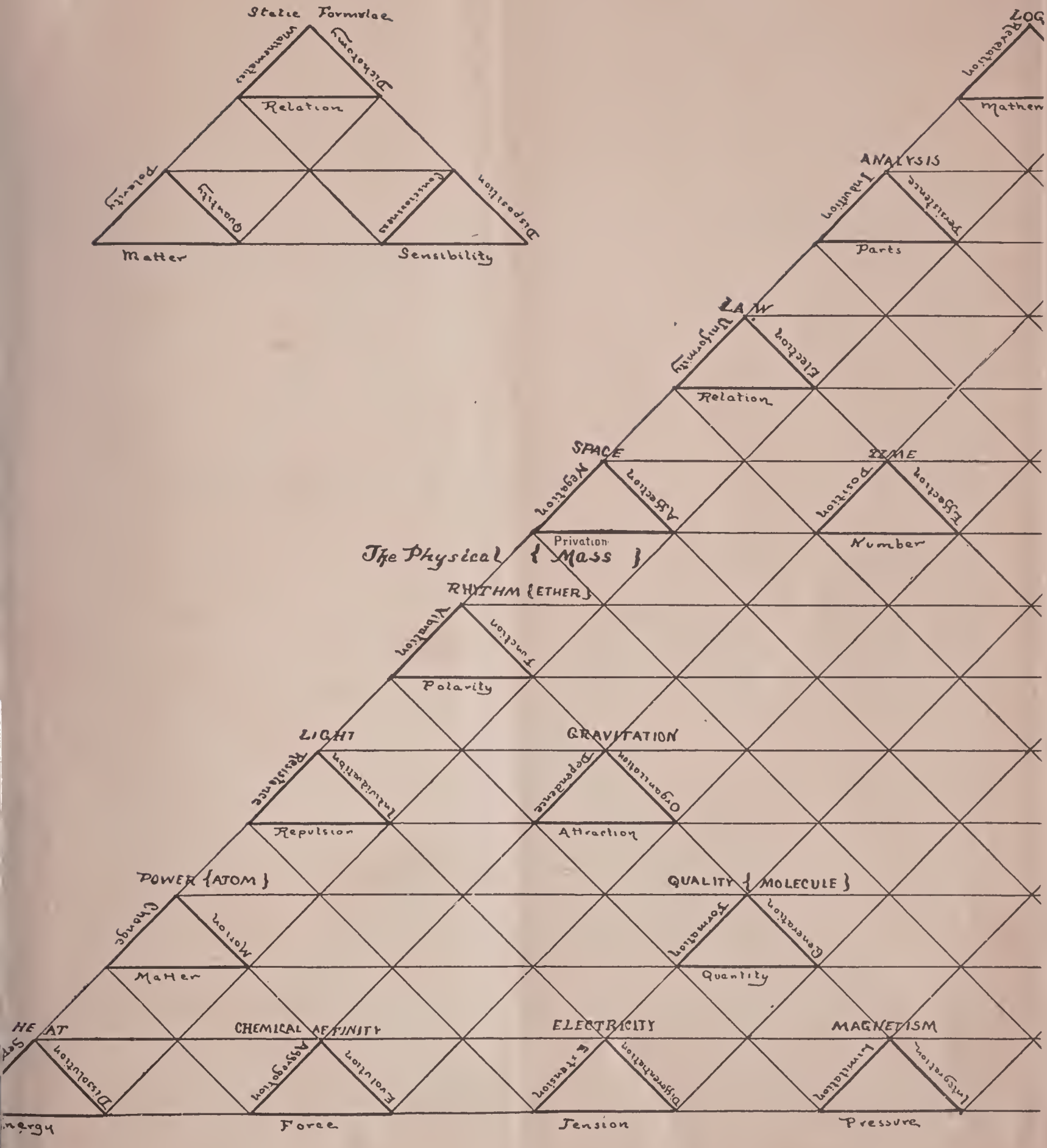
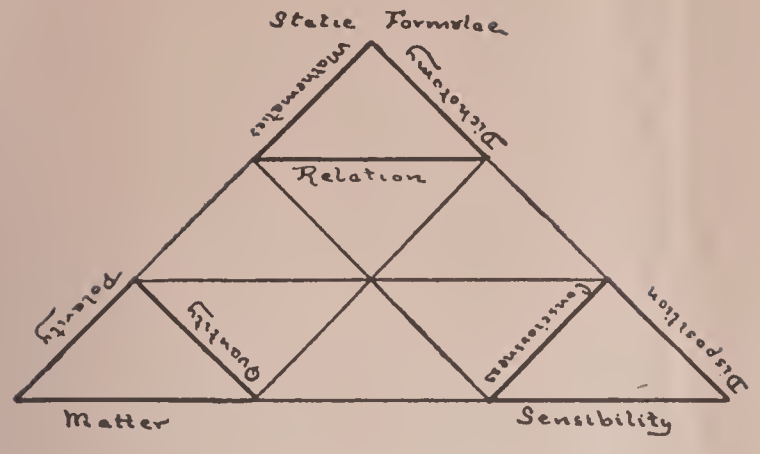
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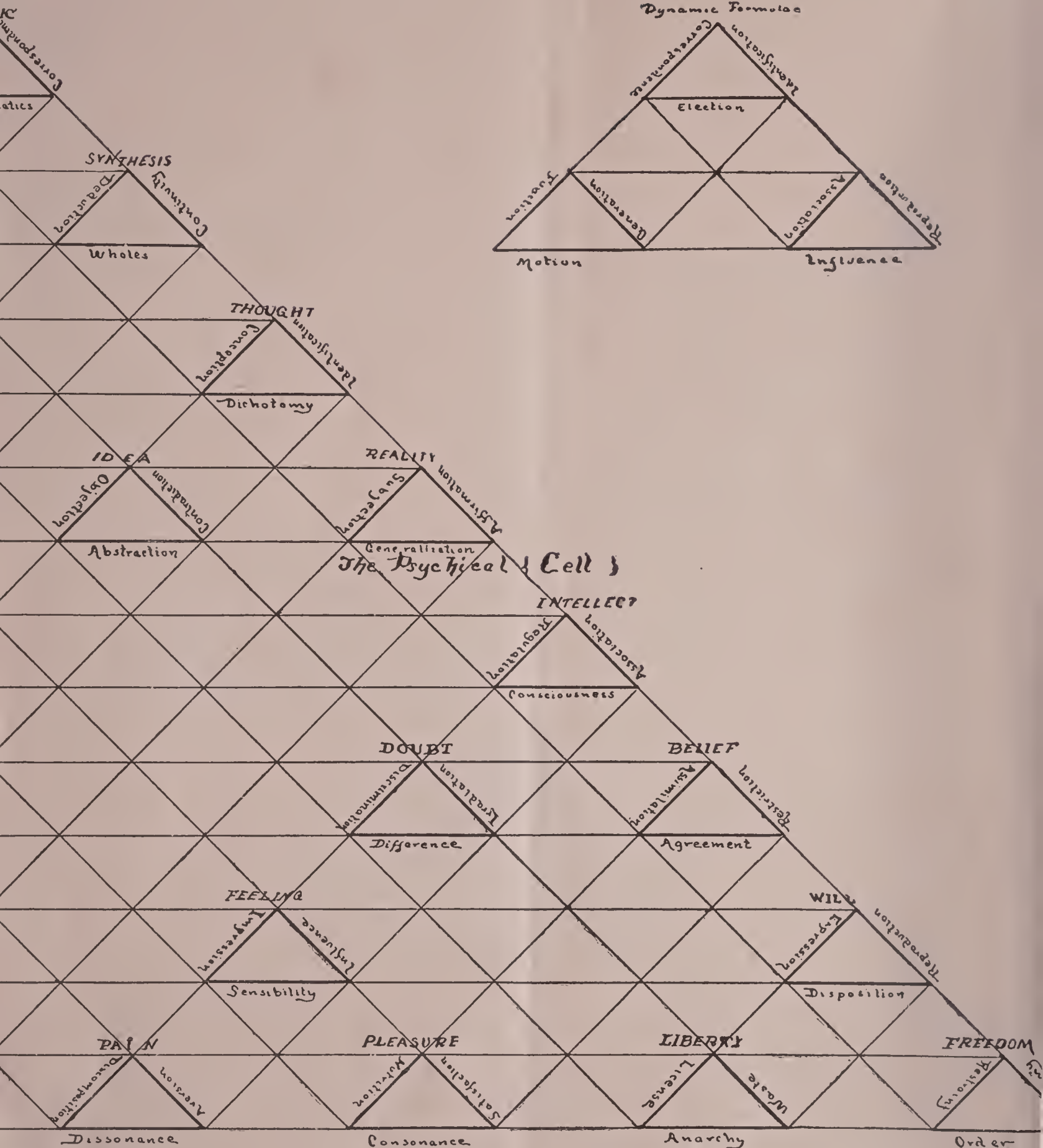




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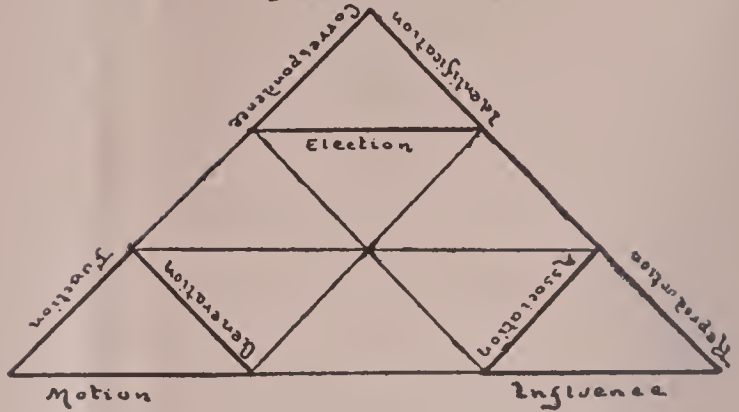


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EXPLANATION

OF

A THEORY OF THE MENTAL CONSTITUTION

BY

C. STANILAND WAKE.

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## PREFATORY NOTE.

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This Explanation of the Theory of the Mental Constitution elaborated by Mr. John J. Van Nostrand, of Chicago, is intended to show the organic nature, not only of the Theory as a whole, but of the formal concepts of which it is composed. Until the latter point is thoroughly appreciated, the Theory itself cannot be really understood. Nevertheless, the System as an organic whole has a higher value than that of any of its parts; on the principle that a function which is the generalized expression of all subordinate functions must be superior to any of its subordinates.

In carrying into effect the request of the author of the Theory, I have adopted with little comment the terms employed throughout the system. In justice to myself, however, as well as to him, it is only right that I should say, that, in my opinion, most of the subsidiary terms in the Physical require alteration or rearrangement. My own views on this point will be explained in a work I am preparing on "Nature as Organic," a work which will, I believe, supply all the data necessary to the establishment of Mr. Van Nostrand's Theory on a firm basis.

It may be added that the Theory in its present form is the result of thought and elaboration extending over a period of seven years, during the latter part of which I have assisted the author in its development. It is therefore perhaps fitting that I should undertake to state the principles which find expression in the Theory. The value of the system it exhibits ought to be at once apparent to the physio-psychologist, especially if he is at all acquainted with the principles of Hegelianism.



## THE MENTAL CONSTITUTION.

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Notwithstanding some question as to the nature of the human mind, it must be regarded as strictly organic. This is required by the fact of its connection with a physical organism, with which, indeed, it is so intimately associated that it is difficult to distinguish between their respective operations. Every bodily change, internal as well as external, is attended with a psychical sensation or impression, although this is often and perhaps usually unobserved, and every psychical impression is accompanied by a physical change of some kind. This is generally recognized as true, and the actual operations of the mind have been pretty clearly ascertained. Nevertheless these operations have not hitherto been so thoroughly correlated with those of the physical organism as to allow a satisfactory Theory of the Mental Constitution to be formulated. Such a formulation is indeed possible only if three points are kept in view, and unfortunately they have been but little regarded.

The first of these points is the necessity of precision in the use of terms. It is of great importance for the proper understanding of a writer's meaning that the terms he uses should be always employed in the same sense, and that if this sense is at all uncommon they should be properly defined; but it is of still greater importance that different scientific writers should express the same sense by the use of the same terms. Absolute precision would require the formation for general reference of a glossary of scientific terms, and the less the approach to this precision the more uncertain must be the conclusions arrived at by scientific men.

The second thing essential to a proper theory of the mental constitution is the application of the law of polarity. The operation of this law is exhibited in the three laws of thought, but its true nature does not appear to have been fully recognized by psychologists, although it is referred to by Professor Bain, and other writers. It was undoubtedly present to the mind of Hegel while developing his remarkable system of thought, or "Logic," although enveloped in a cloud of metaphysicism which tends to hide the truth from the common mind. The writer who has the most clearly perceived the importance of the law of polarity in relation to psychical phenomena, although he did not see the full bearing of his remarks, is Mr. G. H. Lewes, who, in his *Problems of Life and Mind*, insists on the "legitimacy no less than the necessity of the law of polarity, or doublesideness, which finds its expression in differentiation and integration, plus and minus, quality and quantity, things and relations, matter and motion, continuity and discontinuity, and many others, at the head of which must be placed subject and object, or self and not-self." Elsewhere Lewes speaks of the law of the two-fold aspect, but this is simply the psychical expression of the law of polarity.\*

The third point to be kept in view is the three-fold nature of the mental constitution, considered as embracing all its aspects, physical and intellectual. This really follows from the operation of the law of polarity, for, as will be shown more fully hereafter, the negative and positive aspects of polarity imply the existence of a third, which may be termed the formal aspect, as being that which combines the other two, these being from another point of view, therefore, merely its two-fold phase of operation, or to use Lewes' phrase, its two-fold aspect. Thus the two phases, physical and psychical, of the mental organism, are merely the polar aspects of a third or formal aspect, which in the Theory of the Mental Constitution discussed in these pages is termed the Philosophical.

\*It is remarkable how clearly the universality of this law was recognized by Mrs. F. B. Burton in her ingenious work, "Elective Polarity, the Universal Agent," published in 1845.

The division of the mental constitution into Physical, Psychical and Philosophical made by this theory is very different from that which separates the Mind into Feeling, Intellect and Will. Such a division cannot exhaust the complex organic unity known to us as the human mind. In the first place, it makes no provision for the physical existence which forms the basis for feeling, intellect and will. Muscle and nerve are, in our experience, essential to the activity of those psychical principles, which again are generally supposed to distinguish the animal from the plant, although there is reason to believe that the latter, equally with the former, has a sentient existence, which nevertheless is seldom externally manifested. But further, if it is intended to frame an organic representation of the mental constitution, it is necessary to make some provision for the special features which distinguish the human mind from that of the animal. Undoubtedly man has developed certain mental faculties which animals do not possess, and as they appear to depend on the operation of the principles of analysis and synthesis they may be properly termed Philosophical.

There is one other principle which is essential to a true theory of the mental constitution, that of Correspondence, but this as the dynamic expression of Continuity, which the great Francis Bacon was the first to insist on, is a test of its truth rather than a factor in its formation, and further reference to it may be reserved to a later period.

The human mental constitution may then be said to consist of three main divisions, the Physical, the Psychical, and the Philosophical, of which the last answers to the Intellectual in ordinary discourse, as the Psychical may be said to represent the Understanding. In Mr. J. J. Van Nostrand's Theory, as displayed in the accompanying Table, the mental constitution takes the form of three triangular pyramids. Of these, two, the Physical and the Psychical, form the base for the third, the Philosophical, of which the *negative* side stands in a special relation toward the Physical, and the *positive* side is similarly related to the Psychical. The Philosophical may be said, indeed, to emerge out of the other two divisions of the mental constitution as the result of their interaction, or in other words it is the formal expression of their organic activity; although it must be regarded as having always existed in germ, and in fact to have constituted their organic unity. Moreover, although the philosophic phase may thus be said to be dependent on the Physical and the Psychical for its emergence, yet when it has become established it has an independent existence, in so far as that it forms one of the main divisions of the human constitution of equal value with the other two, if indeed its *formal* character does not render it superior to them. It undoubtedly stands above them in the hierarchy of powers in the human mind, and it also supplies, if not the actual principles which govern the mind in its operations, at least the explanation of such principles. Philosophical explanation consists in the formulation of the laws which govern the organic in its three-fold activity, as Physical, Psychical and Philosophical.

Let it be noted, moreover, that the Philosophical has the same three-fold aspect as that which belongs to the Psychical, and as the three subdivisions of the latter, Feeling, Intellect and Will, are regarded as forming an organic whole, standing in a certain relation towards the Physical but yet independent of it (seeing that the phenomena of each have their own distinctive character, although but differing aspects of the same truth), so must it be with the Philosophical. This is divided into Law, which answers to Feeling, Thought, which answers to Will, and Logic, which answers to Intellect, and the combination of those Philosophical elements forms an organic whole which, within its special province, is complete in itself. Such being the case, the nature of the Philosophical may be considered independently of the other divisions of the mental constitution, and when this has been done it will be found that, as every part of the mental constitution is subject to exactly the same principles of construction and operation as every other part, the explanation given of the Philosophical must



also include that, not only of the Psychological, but of the Physical as well, since they are all governed by the same laws, which are those of nature itself, although being on different planes of existence they are somewhat differently expressed.

But what is meant by the statement that each of the three great divisions of the mental constitution, although organically connected with the other divisions, forms in itself an organic unity? When we speak of an organism we mean a living body, every part of which stands towards every other part in a special relation, which finds expression in the functional activity of the body as a whole, as distinguished from the special activity of its particular parts. Thus the human body consists of various organs, each of which has its own special function, but this is subordinated to the general function of the whole body as a living organism, of which general function the functions of the separate organs are particular expressions. If, then, we compare the mental constitution to the animal organism, the three great divisions of the former, the Physical, the Psychological, and the Philosophical, answer to the separate provinces of the body, and like these each of them possesses its own organic character, exhibited in the special function it has to perform.

This analogy may be carried further, however, as the organic structure of the animal body is of a complex nature. While the organic whole may be regarded as a single large cell, whose functional activity takes on different forms, it may be considered also as a combination of various organs, each of which is built up of an almost endless series of cells, every one organic and having its own particular function to perform within the unity of which it forms a part. In like manner, the Mental Constitution, in addition to its three main divisions, consists of several sub-divisions, each of which by its very nature is organic, and, moreover, stands in an organic relation towards the other subdivisions; every one of these again being made up of organic elements each having its special function to perform, but in subordination to the generalized functions of the parts to which they belong, as these are subordinated to the unity of the mental constitution itself.

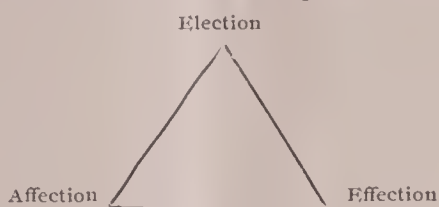
We thus see, that in the mental constitution every element which answers to the cell and every formation which is made up of a combination of elements, possesses the organic nature as above explained. What those elements consist of will be seen by reference to the annexed Table exhibiting the Theory, which shows that each of the three main divisions of the Mental Constitution is subdivided into three parts, and that each of these is again divided into three smaller parts, which are severally made up of an Idea and a Reality, with a static and a dynamic aspect. The organic elements above referred to are these last subdivisions, and their organic nature consists in the relation which subsists between the element as a whole and its parts. Thus, we may say that the Idea, as the object of thought, and the Reality, as the subject, constitute the formal Whole, its parts being its two aspects, of which the static represents the condition of activity and the dynamic the nature of this activity, and thus the former may be regarded as the organic and the latter the functional aspect. These relations may be exhibited diagrammatically in the following figure, which represents the highest element of the affective phase of the Psychological division of the mental constitution.



Here feeling may be said to be composed of Sensibility and Influence, which stand in opposition to each other, as the negative and positive poles of a magnet, which are essential

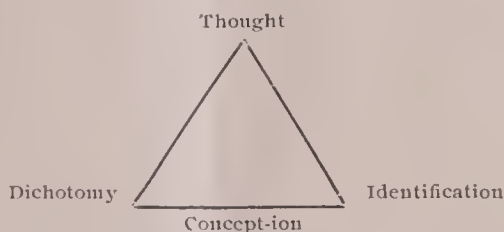
to the magnet itself as a whole. The poles cannot exist without the magnet, but the magnet as such has no existence apart from its poles. We see, moreover, that Feeling and Impression stand towards each other in a particular relation. The latter, as the Reality, is the subject, and the former, as the Idea, is the object, this relation being, as Lewes points out, the highest expression of the law of polarity.

It is necessary to point out, further, that polarity implies motion. Opposite magnetic poles attract, as similar poles repel each, and without the possibility of such attraction and repulsion there could be no polarity. On the other hand, with constant oscillation between one and the other there could be no stability. In relation to the formal concept—which is the proper term to apply to the several sub-divisions of the Theory of the mental constitution, but which is also applicable to the elements of which they are composed—the term Election stands for the effect arising from the movement of opposite or complementary activities, which are aptly termed Affection and Efection. This is represented in the following diagram :



Here Affection answers to the negative, which is also the organic phase of the concept, as efection is the positive or functional phase, Election, as the expression of the polar activity of the affective and effective, being its formal phase. There can be no election without affection and efection, that is, without the co-action of opposing motions, the result of whose opposition is registered as their elective influence.

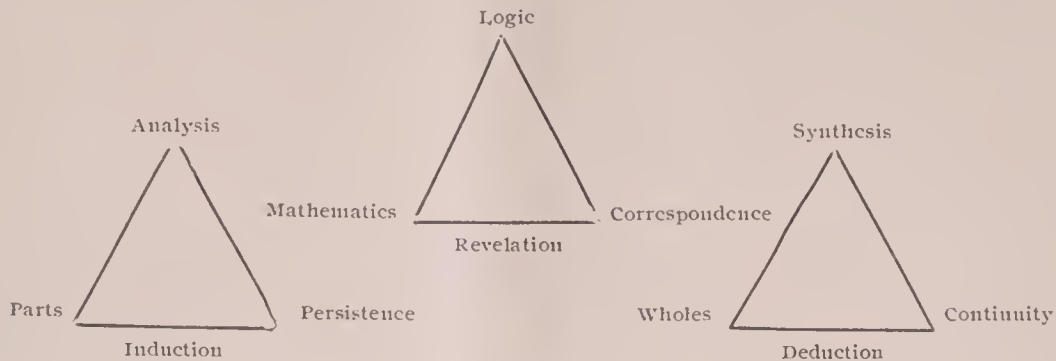
The above figure represents, as we shall find, the dynamic formula of Law, and it may be said to supply the type for the formation of every concept. This is apparent when we consider the structure of the concept Thought, which is the effective element of the Philosophical division in the Theory. It is represented in the following diagram :



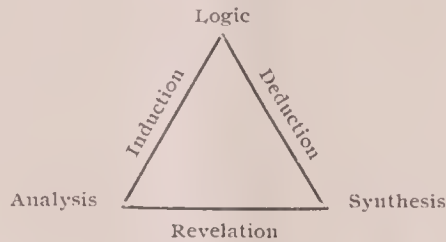
In this figure, Dichotomy appears as the negative aspect and Identification as the positive aspect of Thought—Concept-ion, which as their formal expression, is the elective. Thought, as the Idea, of which the Reality is Concept-ion, is thus a polar process requiring on the affective side Dichotomy, and on the effective side Identification, which is the function of Thought, Dichotomy being its condition. This view of Concept-ion is consistent with the ordinary meaning of the term, which implies the co-operation of two factors, whose mutual action results in the formation of the concept. Thought thus depends on Dichotomy as its condition, and Identification as its activity, they being the affective and effective aspects of Concept-ion, the concept itself emerging as the result of their co-operation. The concept, as answering to Formation in the Physical, is a series of motions, under the conditions of Dichotomy, the fulfillment of which requires the application of the law of polarity. By virtue of this law the concept takes on its affective and effective formation, which is exhibited as its negative and positive aspects; as appears in the perfected concept Thought, where Thought itself, as the elective element, supplies the formal aspect.



If we refer to the highest division of the Theory as exhibited in the Table, and consider the formal concept Logic, which is its elective, we see that it is really made up of three separate concepts, which may be termed subsidiary. Represented diagrammatically they take the following form :



Now these concepts, although each possesses its affective, effective, and elective elements, are, so far as their position in the Philosophical division of the Theory is concerned, subordinate to the three-fold unity of which they are the parts. In this unity Analysis, with its static and dynamic aspects, represents the affective or negative side, and Synthesis, with its two aspects, the effective or positive side of the formal concept of which Logic, with its polar phases, is the elective. We have a summary representation of those ideas in the following diagram, which comprises the elective terms of the three sub-concepts :

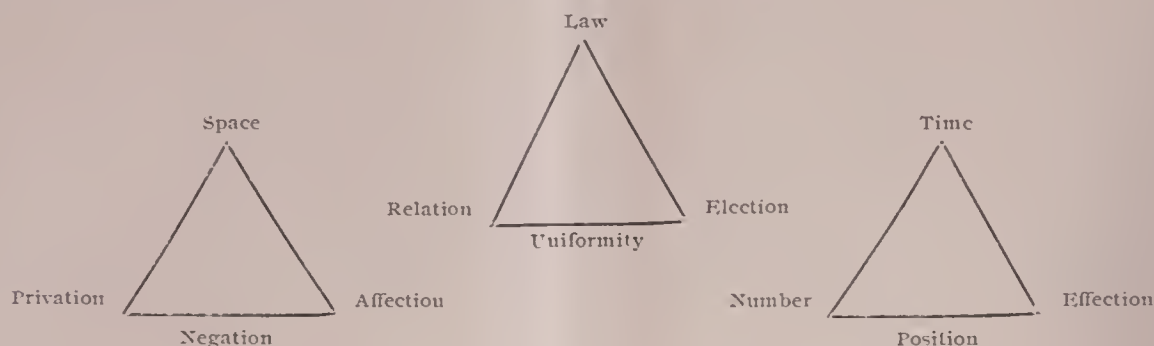


It is evident that what may be termed the functional activity of Logic, regarded as an organic whole, depends on the co-operation of all its parts, each of which is separately of subordinate value. The organic value of each part, moreover, depends on its association with the other parts, just as that of the separate organs of the body arises from their mutual relation as parts of a common whole. But, as we have already seen, Logic is only one of the Philosophical subdivisions of the mental constitution. Apart from the other subdivisions, Law and Thought, it would have as little relative value as Logic itself would have separated, if this were possible, from Analysis and Synthesis. These are, indeed, the polar phases of Logic, that by which it exists, and out of whose activity it may be said to emerge. In like manner, Logic emerges from the polar activity of Law and Thought, which are the negative and positive, or affective and effective phases of the Philosophical, as Logic is its elective phase. Or, if we regard Law as the organic phase, and Thought as the functional phase, then we must treat Logic as the formal phase of the Philosophical.\*

\* It is through formal thought that uniformities are discovered. They emerge from the thought process as a mathematical expression of certain uniform motions traversing the fibrous matter of the brain and its relations throughout the body. This mathematical expression is a positive correspondence revealed by the co-related motions of the protoplasmic, cellular, and fibrous forms of matter of the human body, which severally answer to the Physical, Psychical and Philosophical divisions of the Mental Constitution as exhibited by the Theory. Formal Logic is the form of motion arising from the interaction of Formal Concepts, when they as parts of a logical whole occupy valid positions, that is, such positions as render them effective—which can be the case only when by their uniform motion their election in co-relation is identified.

Uniform motions are laws. Equal spaces covered in equal times elect validity, and of course this can only refer to the motion or motions of some body or condition. It is, therefore, the motions of a thing which are its laws. [See *Infra*.]—J. J. V. N.

All these sub-divisions of the Philosophical are necessarily constructed according to the same principles, and therefore both Law and Thought are formed of three subsidiary concepts, each of which has three aspects, the organic or negative, the functional or positive, and the formal, which are related among themselves as affective, effective and elective. The three Legal concepts may be represented separately as follows :

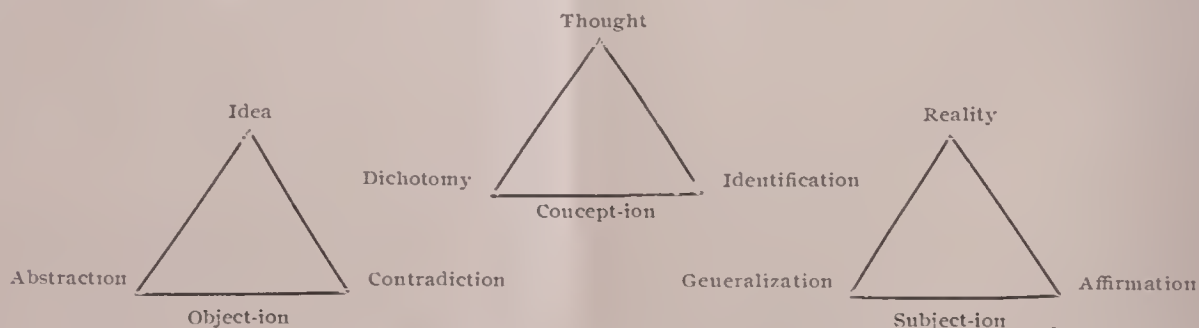


These three concepts stand towards each other in exactly the same relation as the separate terms of each concept have among themselves. The relation is one of polarity, the concept Space being the negative, the concept Time the positive, and the concept Law the formal expressions of the perfected concept Law, and thus its affective, effective and elective phases. These relations may be given a more organic form, by an arrangement of the elective terms of the three concepts similar to the representation of the formal concept Logic, at page 7, as follows :



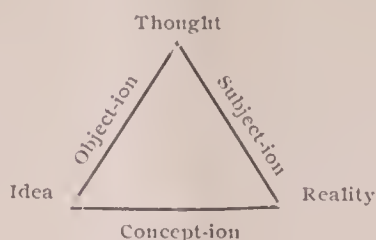
Here Space—Negation forms the affective side of the perfected concept, Time—Position its effective side, and Law, of which Uniformity is the reality, its formal expression.

The real meaning of this and other Philosophical concepts will be explained when we come to consider the relations which the Philosophical and the Physical divisions of the mental constitution bear towards the Psychological division. At present we are concerned only with individual formal concepts, and following the course already pursued with reference to Logic and Law, we will now analyze the concept Thought. The three sub-divisions of this concept may be represented as follows :



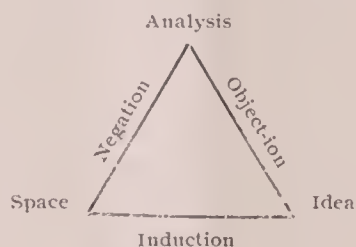
In the mutual relation of these three subsidiary concepts, the organic nature of the concept Thought consists. The affective and effective concepts are its polar aspects, and in combining

they give rise to the elective, which is their formal expression. This combination is exhibited in the following diagram, representing the Ideas and Realities as the electives of the subsidiary concepts.

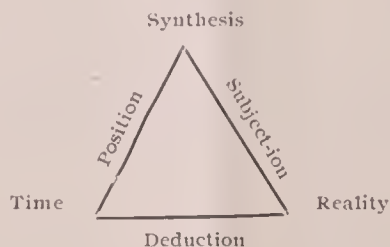


Here Idea and Object-ion constitute the affective phase of the completed concept, Reality and Subject-ion its effective phase, and Thought and Concept-ion, as Object and Subject, the polar aspects of its elective phase. Thought is thus the emergent from Idea and Reality, of which it is the formal expression, while Concept-ion stands in a similar relation to its negative and positive aspects, Object-ion and Subject-ion.

It has been pointed out above that the type of the formal concept is due to the operation of the principle of polarity, which is exhibited in the negative and positive aspects into which the concept divides, in pursuance of the dichotomy which is the condition of Concept-ion. A little consideration reveals the fact that the Ideas which thus stand in a polar relation, as negative and positive aspects of the concepts Law and Thought, have a special connection with the sub-concepts of the elective formal concept, Logic. In fact, the negative sub-concept Analysis becomes there exhibited as Space and Idea, and the positive sub-concept Synthesis is exhibited as Time and Reality. The interconnection of the negative sub-concepts is shown in the following diagram :

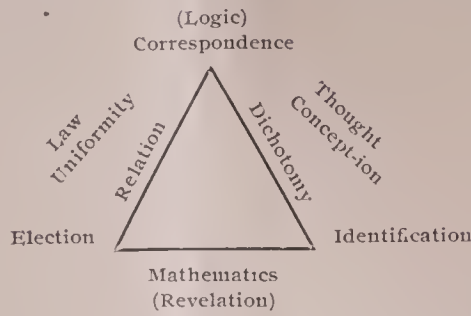


The following diagram gives a representation of the positive sub-concepts of the three divisions of the Philosophical :

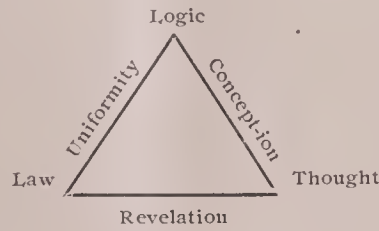


In the upper of these diagrams we have the Ideas and Realities which form the electives of the negative or affective aspects of the Philosophical throughout its several divisions, and in the lower diagram we have the electives of its positive or effective phases. These may be supplemented by a representation of the three concepts which form the electives of the formal concepts Law, Thought and Logic, as this will be equivalent to a representation of all

their subsidiary concepts. The following is such a generalized expression of the Philosophical division of the mental constitution :

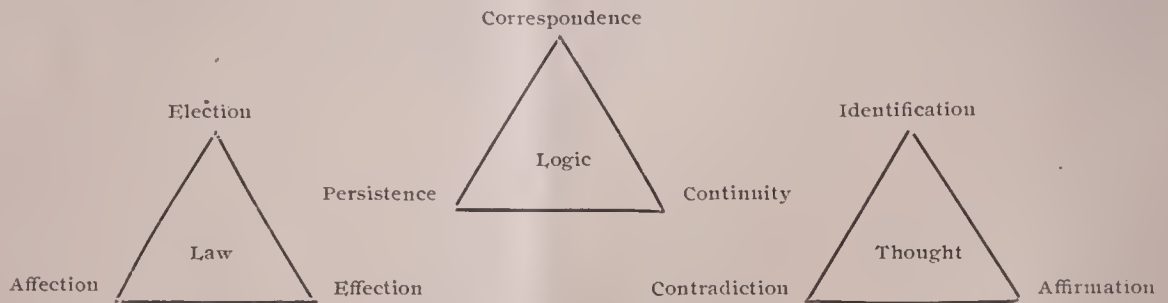


In this diagram Law occupies its proper position as the affective, and Thought that of the effective. They are thus the negative and positive aspects of Logic, the formal character of which is brought out more clearly in the following diagram, where it appears as the elective of the various Ideas and Realities comprised within the Philosophical division :



From this diagram we see that, in its highest sense, Logic, as the Idea, is Thought under the condition of Law, and that Revelation, as the Reality, is Concept-ion under the condition of Uniformity. But the static aspect of Logic is Mathematics, and its function Correspondence, and hence Philosophy is Revelation through the agency of Mathematical Correspondence.

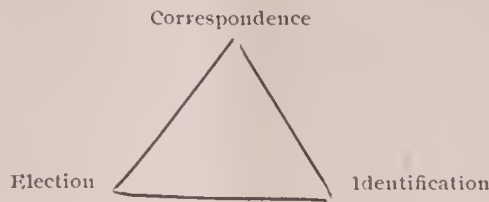
The organic unity of the Philosophical phase of the mental constitution has now been sufficiently exhibited, and we have seen that each of its concepts, whether subsidiary or completed, has its static and dynamic aspects. The static is the structural or organic factor, and the dynamic is the functional. The function furnishes the law of organic activity, and the dynamic aspect is, therefore, of especial importance in relation to the theory of evolution, of which the Theory under discussion is an expression. The following diagrams exhibit the dynamic formula of Law, Logic and Thought, the three main divisions of the Philosophical :



The last of these formula will be recognized as representing the three well known laws of thought. The first formula is of great importance as furnishing the type according to which, as we have seen, all concepts must be constructed. The dynamic formula of Logic is of still higher significance, as it supplies the key by which to determine, not the mere type of the concepts of which the theory of the Mental Constitution is built up, but the very material of the theory. Logic, as the elective principle of the Philosophical, forms the apex of the



pyramid of truth. It is, in a sense, the formal expression of all truth, and hence its highest term must be of especial value. This is shown by the following diagram representing the electives of the electives of the Philosophical formal concepts.

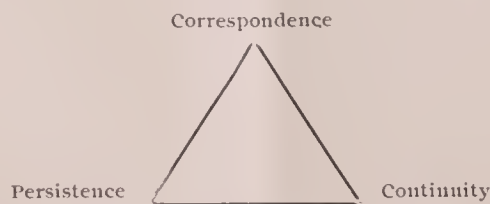


In this diagram we have the complete functional exhibition of the Philosophical. As its formula represents the dynamic formula of Law, the governing principle of which is polarity, Correspondence is the formal elective which emerges from the co-operation of Election, as the negative-affective, and Identification, as the positive-effective, and therefore it is the highest expression of functional activity.

But Election represents the principle of Law, and Identification that of Thought, which are the affective and effective concepts of the Philosophical. Moreover, the condition of the activity of Thought is Dichotomy, and that of Election is Relation, and therefore Correspondence, as the functional aspect of Logic, has to do with dichotomous relations. The Theory of the mental constitution is an exhibition of those relations, and the key to its significance, apart from its typical formation, lies in the necessary correspondence between the terms which express those relations, not only in the concepts of the Philosophical, but also throughout the whole of the other divisions of the mental constitution, which are not only built up according to the same type, but are embodiments of similar relations.

Before proceeding further the sense in which the term Correspondence is used should be explained. It cannot mean exact likeness, because it has reference to different divisions of the mental constitution, that is, to mental phases on different organic planes. By Correspondence, then, must be understood similarity rather than sameness, and the idea to be kept in view is that of *equivalence*, by which is meant that the mental aspects compared, are of equal value in the positions they occupy, be this in the Philosophical, the Psychological, or the Physical division of the mental constitution. Even within the same division there is a difference of relation which requires to be represented by a change of term, and this may be regarded as a step in organic progress, every step in advance being positive progress, as every backward step is a negative progress, that is a retrogression. There must still be perfect equivalence in the terms used to express these steps, even when by accumulation they have come to represent stages of progress, and the want of it will be sure evidence that there is something wrong with the terms employed to express one or other of the relations compared.

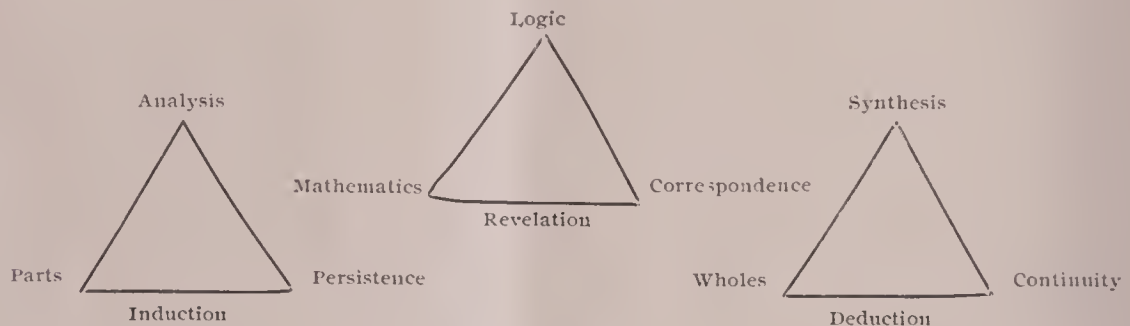
But the Correspondence or Equivalence just referred to may be said to depend on another phase of equivalence which, as expressive of the organic relations of the mental constitution, is of the utmost importance. This can best be illustrated by the dynamic formula of Logic, which was represented at page 10, but which may be here repeated, as follows :



In this formula the affective term Persistence represents the negative analytic activity of Correspondence as the elective function of Logic, and the effective term Continuity repre-

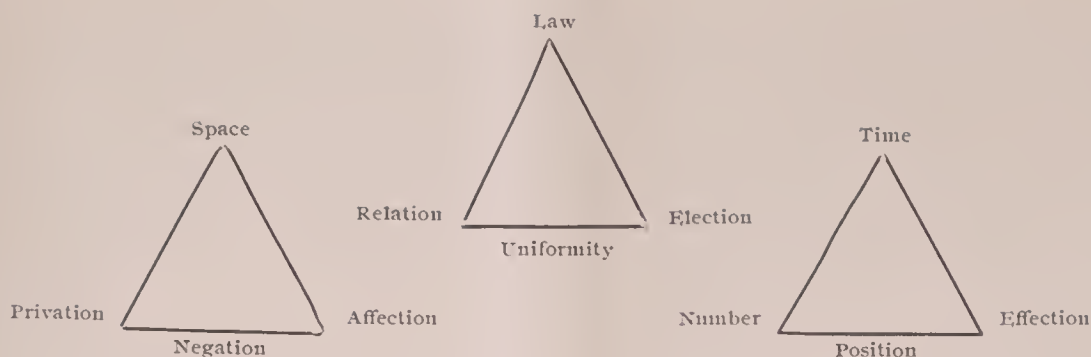
sents its positive synthetic activity. The elective is thus always the equivalent of the affective and the effective, as is required by the fact that the latter exhibit the polar activity of the former, which therefore is their formal or organic expression.

This law of equivalence is exhibited in the dynamic formulas of Law and Thought also, represented at page 8 above, Election being the equivalence of Affection and Effectation, and Identification of Contradiction and Affirmation. It is applicable no less to the subdivisions of the several formal concepts which make up the Theory of the mental constitution, than to the separate formulas into which each such concept may be analyzed. Thus Logic is the equivalent of Analysis and Synthesis, as Law is the equivalent of the relations of Space and Time, and Thought that of Idea and Reality. Moreover, the formal concepts Law and Thought find their equivalence in that of Logic, since they are its affective and effective phases. That law operates also throughout the Physical and Psychical divisions, and it equally governs these divisions themselves as the affective and effective phases of the mental constitution, of which the Philosophical is the elective. The Philosophical is the expression of the Physical and the Psychical, because it is their equivalent, as combining within itself the varying aspects of every idea which they embody. The law of equivalence as thus stated is practically the same as the law of polarity which regulates the construction of the formal concept, or rather it supplies the formal element on which the negative and positive phases depend for organic expression. To show its operation in the formal concept, Logic, its several elements may be exhibited diagrammatically as follows :



In the sub-concept Analysis, Induction is the equivalent of Parts and Persistence as their formal expression, and in the sub-concept Synthesis, Deduction, as the formal expression of Wholes and Continuity is their equivalent. These sub-concepts, however, constitute the negative and positive, or affective and effective aspects of the formal concept Logic, which may be described therefore as the equivalent of Analysis and Synthesis, or of their Realities Induction and Deduction. As to the correspondence between the terms employed to express those relations, it is evident that Parts and Persistence have such a relation to Analysis as Wholes and Continuity have to Synthesis. Moreover, Mathematics stands in the same relation to Parts and Wholes—which represent minus and plus—that Correspondence does toward Persistence and Continuity, Parts being constituted by Persistence and Wholes by Continuity.

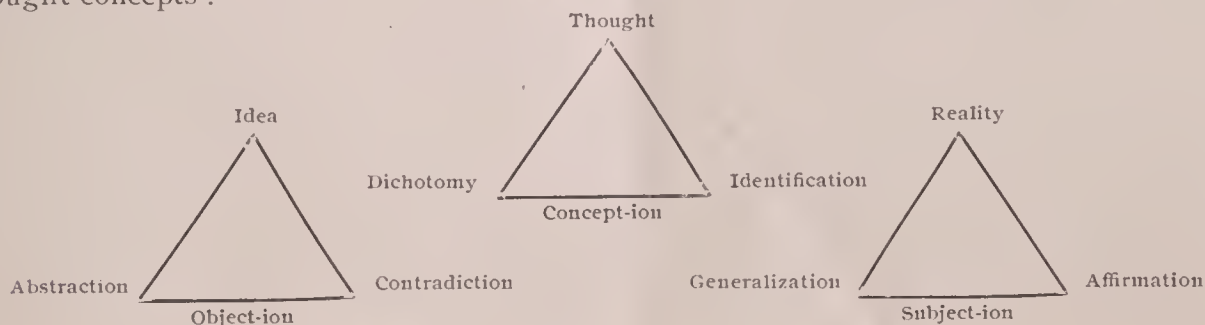
By the law of correspondence, there should be a complete equivalence between the several subsidiary concepts which are embraced within the formal concept Law, and those of Logic, given above. That this may be recognized the former are here represented diagrammatically :



According to the principles already laid down, Space must be the equivalent of Privation and Affection, which answer to Parts and Persistence in the affective of Logic, and Time, that of Number and Efection, corresponding with Wholes and Continuity in the effective of Logic. In like manner, Law is the equivalent of Relation and Election, which answer to Mathematics and Correspondence in the elective of Logic. It may be added that Privation as Affection is the Negation of Space relations, and Number as Efection is the Position or positing of Time relations. Moreover, the Election of relations is Uniformity as Law. But legal uniformity must be the equivalence or formal expression of Space-Negation and Time-Position, as its affective and effective aspects, that is, the idea of Law, as Uniformity must emerge out of the polar relation, Space and Time. This fact is expressed in the explanation given of uniformity of motion, as "the passage of a body over equal spaces in equal times." Law may thus be described as the formal expression of the uniformity of relations in Space and Time, which relations depend on motion.

If now we compare the elective elements of the several subsidiary concepts of the concept Law, as above represented, with those of the subsidiary concepts of the concept Logic, we see that Analysis as the Idea and Induction as the Reality answer to Space and Negation, while Synthesis as the Idea and Deduction as the Reality answer to Time and Position. Further, Logic as the Idea and Revelation as the Reality correspond with Law and Uniformity. The meaning of this is, that Induction by Analysis, through Mathematics as the condition of Logic, gives Negation of relations in Space, and that Deduction by Synthesis gives Position in Time, while Logic as Revelation is based on Law as Uniformity, of which it is the highest expression.

It should be noted, however, that as the concept Law is the affective of Logic, the former has throughout all its members especial relation to Analysis as the negative aspect of Logic. On the other hand, the concept Thought, with its several subsidiary concepts, as the affective of Logic, stands in a particular relation to Synthesis as its positive aspect. Thus Time, as the effective of Law, is always analytical, in the sense that it arises from Number. In testing the correspondence between the formula of Thought and Logic, that fact will have to be kept in view; since, although the affective of Thought as negative must bear a certain relation to Analysis, yet it will also have a synthetic element, owing to its closer connection with the positive aspect of Logic. The following diagrams give a representation of the three Thought concepts :





Considering these formula in themselves, we must see in Idea the equivalence of Abstraction and Contradiction, and in Reality the equivalence of Generalization and Affirmation, while Thought is that of Dichotomy and Identification; or, in other words, these several elective phases emerge from their affectives and effectives, which from another point of view are their polar activities. The affective of each formula is its static aspect, and the effective its dynamic aspect, and the three affectives and the three effectives may be made to represent separate formulas, as follows:



The operation of the law of equivalence is no less observant here than in the preceding formulas. The affective and effective Abstraction and Generalization are the polar aspects of Dichotomy, which as the formal elective is their equivalent, showing that it consists in Abstraction and Generalization. In like manner Identification is the equivalence of Contradiction and Affirmation, which are its affective and effective modes of operation, or negative and positive phases. This agrees with the explanation usually given of the three laws of thought, which are embodied in the above dynamic formula. Professor Noah K. Davis remarks that the second and third laws of thought, those of contradiction and excluded middle, may be united as the Law of Duality, "the principle of strict logical division and disjunction." Moreover, Identity answers to Definition, in which, says the same writer, the notion defined and the definition are reciprocal or convertible concepts, that is equivalent. But as the law of duality, or contradiction and excluded middle, answers to division, in which a genus, or united whole is divided by dichotomy into its two only species, A and non-A, which are contradictory, and as division and definition are convertible correlatives, Identification must be the equivalent of Contradiction and Affirmation.

But the equivalence of the affective and effective of the dynamic formula of Thought with the elective, establishes the correspondence between that formula and the dynamic formula of Logic, seeing that, as already shown, Correspondence in the Logical answers to Equivalence, and this is the same as Identification. But further, as the electives of the two dynamic formulas thus correspond, their affective and effective terms must also correspond, and Contradiction and Affirmation must be equivalent to Persistence and Continuity.

There is a further equivalence to be noted in the Thought concepts represented above, at page 13. Thought, the Idea, as the elective, is the formal expression, and therefore the equivalent of Idea and Reality, as the affective and effective. It follows that Concept-ion, as the Reality, must be the equivalent of Object-ion and Subject-ion, and in fact it is constituted by these two mental operations. It is necessary, however, to explain what is meant by the terms Object-ion and Subject-ion. Idea is the negative aspect of Thought, that is, it is the separative form in which an object is presented to the mind when it is recognized not simply as an image, but as a bundle of qualities, which represent its Parts. This presentation is mental Object-ion, and is essential to the process of thought concept-ion performed by the human mind. The condition of Object-ion is Abstraction, and its operation Contradiction,



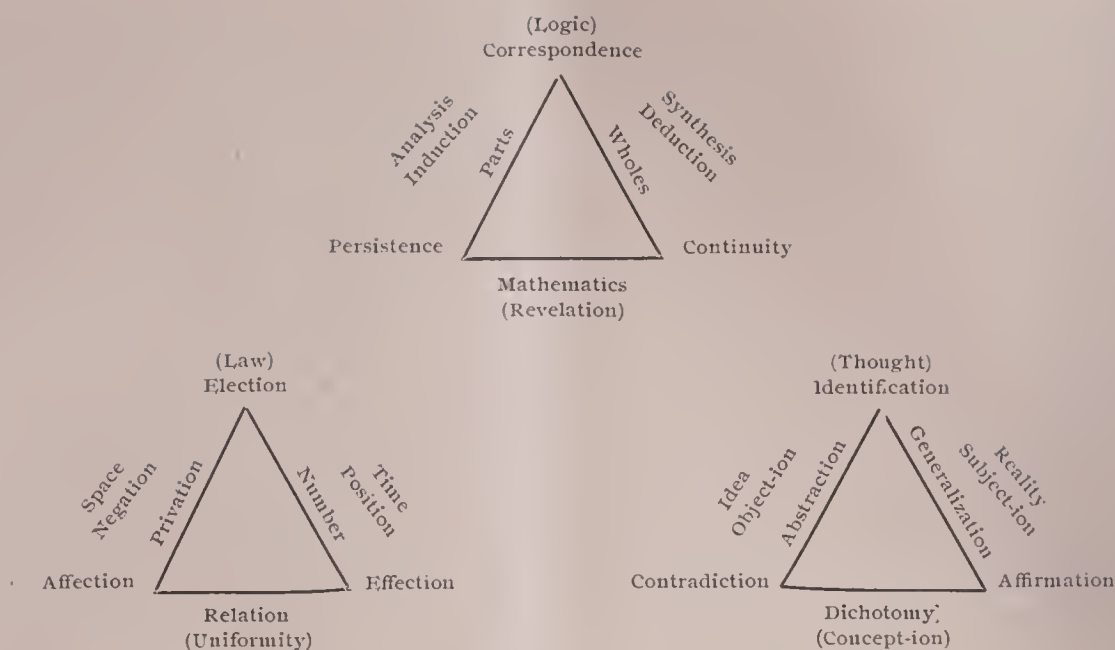
the Ideas which the mind thus acquires undergoing the process of Generalization, and by Affirmation becoming thought Realities. This is the process of Subject-ion which is identification of the qualities resulting from Abstraction with the Reality which emerges as the effect of Generalization. These are the negative and positive phases of thought dichotomy, and the final outcome is the formation of a completed conception, as the formal expression of the dichotomous operation. This formal expression, however, requires embodiment in language, which is essential therefore to logical Identification and is its real evidence.

We are now in a position to consider the correspondence between the Ideas and Realities which constitute the electives of the concept Thought as figured at page 13 and the electives of the concept Logic as represented at page 12. Comparison shows that the affectives Idea and Object-ion in the former answer to the affectives Analysis and Induction in the latter, while the effectives Reality and Subject-ion correspond with the effectives Synthesis and Deduction, and the electives Thought and Concep-tion with the electives Logic and Revelation. The correspondence between the two affectives and also between the effectives is evident from what was said above as to the meaning of Object-ion and Subject-ion. These are, in fact, Induction and Deduction in the effective division of the Philosophical, although, as coming under the positive aspect of Logic, Object-ion possesses an element of Synthesis. This is exhibited as subjective Generalization, which is the synthesis of all qualities of a particular kind abstracted in thought, as the synthesis of qualities of different kinds is objective Individuation. It follows that Idea corresponds with Analysis, and Reality with Synthesis, although an Idea, owing to its connection with the positive side of Logic, may possess a synthetic element which is wanting to Induction.

But do the electives Thought and Concept-ion correspond with Logic and Revelation? This depends on the sense in which these terms are used, and particularly as to the meaning of Logic. This word is connected with the Greek, *Logos*, and in Philosophy Logic is the idea of Wisdom or Truth, that which is embodied subjectively in signs and symbols, and objectively is their actual expression as thought concepts. The Ideas Logic and Thought may be said then to be correspondents in their own domains, and therefore the Realities Revelation and Concept-ion must also correspond, and as Revelation is the result of Concept-ion, so this mental process is in the nature of Revelation, that is, the unveiling of the principles of Uniformity, the Laws of the Human Mind.

But, further, Mathematics, the condition on which Logic depends, is a language of signs and symbols, which are reducible ultimately to the simple negative and positive elements minus and plus. These are the elements which condition the whole mental constitution throughout all its parts and divisions, and that are in fact essential to the formation of every concept which enters into it. This is required by the law of polarity, which exhibits itself as dichotomy in thought, and we thus see that Dichotomy is equivalent in Concept-ion to Mathematics in Revelation. These factors are therefore correspondent; a view which is confirmed by the fact that, as under its negative aspect of Analysis, Mathematics has to do with Parts, and under its positive aspect of Synthesis with Wholes, so Object-ion, the negative phase of Dichotomy, is concerned with Abstraction, and its positive phase Subject-ion with Generalization, these being minus and plus operations.

A comparison having been made of the affective and effective divisions of the Philosophical, Law and Thought, with the elective division Logic, and a correspondence having been established between them, it is not necessary to compare the formulas of Law and Thought among themselves. In the fact of each agreeing with a third, they show their agreement with each other. Nevertheless, to exhibit the nature of this correspondence, a diagrammatic representation may be given of the three completed concepts, Law, Logic, and Thought.



In comparing these formulas, it must be remembered that the concept Law, under all its aspects, is the affective, Thought the effective, and Logic the elective of the Philosophical. Logic is thus the formal expression of Law and Thought, and this is true of all its terms in relation to the corresponding terms of the affective and effective divisions. If we also bear in mind that the elective is always the equivalent of the affective and effective, and that equivalence is the expression of the law of polarity, we shall recognize how thoroughly organic is the arrangement of the Philosophical division of the mental constitution.

It has been already pointed out that the mental constitution possesses three main divisions, which stand towards each other in the same relation as do the several subdivisions of the Philosophical, that is, one is affective, another effective, and the third elective. Moreover, as the elective of the Philosophical depends on the mutual action of its affective and effective for its formal emergence, while finding its expression in them as its polar phases, so the entire Philosophical, while it constitutes the formal expression of the Physical and Psychical, depends on them for the polar activity through which it emerges. Thus, in relation to the mental constitution as a whole, the Physical stands towards its other two main divisions, the Psychical and the Philosophical in exactly the same position as the concept Law stands towards the concepts Thought and Logic in the Philosophical. Hence the Physical forms the negative or affective side of the mental constitution, and the Psychical its positive or effective side, as the Philosophical is its elective or formal expression.

The importance of the Physical is evident when we consider that, through its position as the affective, it forms the condition, not only for the functional activity of the Psychical, but also for the formal activity of the Philosophical. In pursuance of the law of polarity by which its structure is governed, as with the other divisions of the mental constitution, it consists of three sub-divisions which stand toward each other in the relation of affective, effective and elective, and each of these is made up of three elements which exhibit among themselves a similar formal arrangement. Each of those subdivisions has its negative or separative, and positive, or aggregative aspects, which constitute its affective and effective elements, as the idea Rhythm, with its static and dynamic aspects, furnishes the elective or formal element. It is made up, therefore, like the related Philosophical concept Logic, of three subsidiary concepts which, as given in the Theory, take on the following diagrammatic form :





Here the sub-concept Light is the affective, the sub-concept Gravitation the effective, and the concept Rhythm the elective. Rhythm is thus the formal expression, and therefore the equivalence of the mutual activity of Light and Gravitation, which stand in a similar relation toward their own affective and effective elements.

Comparing the above formulas with those of Logic given at page 12, we can well believe that the Ideas Light and Analysis are correspondents, as the object of the latter process is to throw light on that to which it is applied, and in relation to Light itself the process gives us knowledge of the elements of which it is composed. But the correspondence of the other terms of the sub-concept is not so apparent. Resistance can hardly answer to Induction, unless Resistance can be said to occasion light, which it does, apparently, only through heat. Parts and Persistence, the static and dynamic aspects of Analysis, have merely the negative relations of Space, and such must be the case also with Light and its several aspects. In this sense, Individuation and its condition Repulsion may be said to correspond with Parts and Persistence, and as these find their formal expression or equivalence in Space, Repulsion and Individuation must do the same in Light.

The opposite to Repulsion is Attraction and that of Individuation is Organization, terms which have the same degree of correspondence with Wholes and Continuity in the Philosophical elective as are found among the terms on the negative side of the concepts now being compared. The opposite of Light would seem to be Gravitation, which corresponds well with Synthesis. The static and dynamic aspects of Gravitation, which are Attraction and Organization according to the Theory, have a correspondence with Wholes and Continuity, in which Synthesis finds its polar expression. Moreover, Dependence, as the opposite of Resistance, has a relation to Gravitation similar to that which Resistance has to Light.

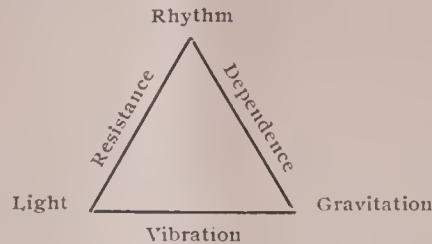
Turning now to the elective formula of Rhythm, we have to consider the nature of its terms, and to ascertain how far they correspond with those of the elective element of Logic. If we refer to the diagram given above, we see that Polarity and Function are the affective and effective to Rhythm, which as the elective is their formal expression and thus answers, in the Physical, to Logic in the Philosophical, whose polar expression is Mathematics and Correspondence. That Polarity and Mathematics are correspondents is shown by the fact that they are both concerned with negative and positive factors. According to the formula, Function is the effective of Rhythm, but the effective is the functional, and the real question would seem to be what is the functional activity of Rhythm or its reality Vibration. That can hardly be Function itself, and as answering to Correspondence in the Philosophical and as having polar attributes, it may be Alternation.<sup>1</sup> Alternation in Polarity would give rhythmic

<sup>1</sup> "Function" is the philosophical term to express the *sum of motions* which constitutes dynamic activity under any particular conditions, and it appears to me, therefore, that if the term "function" ought to be shown anywhere on the face of the Theory, it should be in the place occupied by "Correspondence." But, according to the principle of correspondence there exhibited, a term *analogous* to that should appear as the dynamic aspect of Rhythm, such as "Alternation," or perhaps better still, "Equivalence," as to which see page 12 above. In deference to the Theory, however, I have adhered in the following pages to the term "Function."—C. S. W.



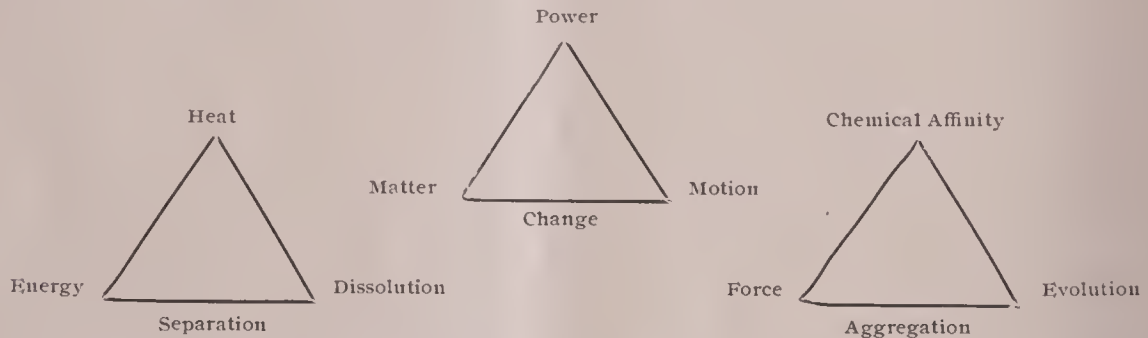
motion as Vibration. This may be described as the formal expression of Polarity and Function, or Alternation, which are its affective and effective phases, that is, Vibration is the result of their mutual action, just as Revelation may be said to result from Correspondence under the condition of Mathematics.

The simplest formal expression of the concept Rhythm is that which embodies in one formula the electives of its three subsidiary concepts, as represented in the following diagram:



Here we see Light and Gravitation as the negative and positive polar aspects of Rhythm, which is the formal expression of their mutual activity. Rhythm stands, however, for Vibration, which must therefore have a similar formal relation to Resistance and Dependence, or to whatever may be the realities of which Light and Gravitation are the Ideas.

We have now to analyze the formal concept Power, which constitutes the affective of the Physical, that its terms may be compared with each other and with those of the affective of the Philosophical, the concept Law. The following diagrams represent the three subsidiary concepts of which the concept Power is composed :



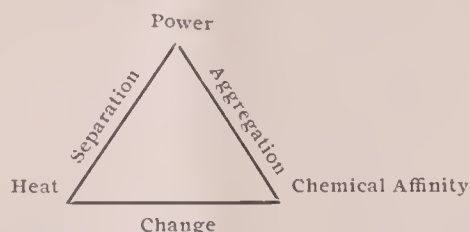
In these formulas Energy and Dissolution are the polar affective and effective phases of Heat, which therefore is their formal or equivalent expression, as Chemical Affinity is of Force and Evolution, which constitute its negative and positive aspects. Further, Power, as the Idea, which results from the activity of matter in motion, is the formal expression of Heat and Chemical Affinity. The Realities of Heat and Chemical Affinity, however, are Separative and Aggregative, and these are the negative and positive aspects of Change, which as the Reality of Power, may be declared to be the balancing or equivalence of those phases of Energy and Force.

If now we compare the formula of Power with those of Law in the Philosophical as represented above at page 13, it may be said that, as these are correspondents, and as the former stand in the position of affection, Change, the Reality of Power, is the condition of Uniformity, as the Reality of Law, which may be described, on the other hand, as Power and Change in the Philosophical. Moreover, Matter and Motion must be the correspondents of Relation and Election, which are respectively the affective and effective attributes of Change in the Philosophical ; just as in the Physical, Uniformity may be said to exhibit its influence in the mutual activity of Matter and Motion. Thus it may be said that the Law of anything is the uniform motion which constitutes its change of relation.

If we turn now to the Heat formula, we find that its affective and effective, Energy and Dissolution, correspond with Privation and Affection in the formula of Space, which is their emergent, the privation of relation being attended with affection and giving the Idea of Space. In like manner Heat, or its Reality, Separation, is the result of Energy and Dissolution, and although Energy can hardly be described as the *condition* of Heat, yet Dissolution is attended with Heat or Separation, as seen in the combustion of the animal tissues as the result of the activity of the physical organism.

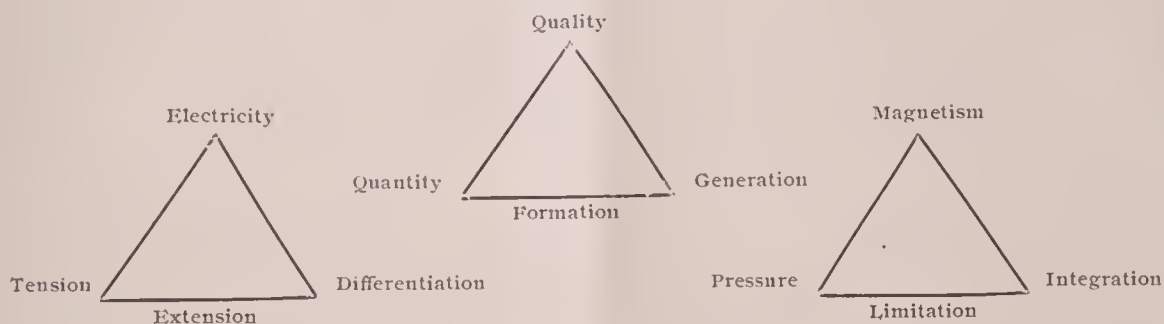
In the concept which forms the positive aspect of Motion, Force is the affective and Evolution the effective to Chemical Affinity, the principle of Aggregation, as the elective, and their correspondents in the Philosophical concept Law are Number and Affection, with Position in Time as their formal expression. Position thus answers to Aggregation, which is concerned with chemical relations, as Position is connected with the number of such relations. Again, Effectation, which gives rise to the idea of Time, answers to Evolution which exhibits itself as Chemical Affinity, and as its condition Force is the correspondent of Number, we see that the latter, which has reference to Relation, is the Philosophical expression of the former, which has reference to Matter.

These various Physical relations may be formulated more simply by associating the Ideas and Realities of the subsidiary concepts which make the formal concept Power, as in the following diagram :



In this figure Heat and Chemical Affinity are the polar phases, that is the negative and positive aspects of Power, which is their formal expression, as resulting from their mutual activity. In like manner, Change, the Reality of Power, is the formal expression of its polar phases, Separation and Aggregation, from which, on the other hand, it may be said to emerge; as Uniformity, the Reality of Law, emerges from the mutual relation of Negation and Position.

Having examined and compared the terms and formulas of the affective and elective divisions of the Physical, we will now consider the effective division, which consists of the formal concept Quality and its sub-concepts. They may be represented diagrammatically as follows :



In the central figure, which represents the elective formula, we see that the affective is Quantity, and the effective is Generation, these being the negative and positive phases of Quality, or it may be said that Quantity generates Quality, which as emerging from them is the equivalence of their activity. Comparing these terms with those of the elective ele-

ment of the formal concept Thought in the Philosophical, as given at page 13 above, we see that Generation corresponds with Identification, whose condition is Dichotomy, as the condition of Generation is Quantity.

Turning to the concept Electricity, which forms the affective or negative aspect of Quality, we find that Tension and Differentiation are the polar phases of Electricity, which, as Extension, is their formal or equivalent expression. Now the Reality of Idea, which answers to Electricity, is Object-ion, which is a process of Extension, its condition being Abstraction, as that of Extension is Tension. This is attended with electrical Differentiation, a process that corresponds with Ideal Contradiction, which is the functional operation of Abstraction.

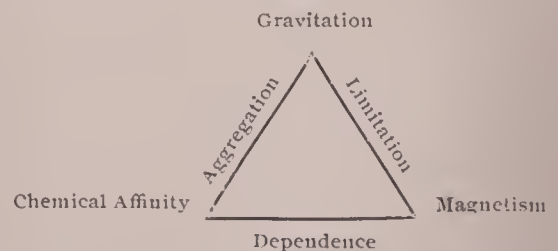
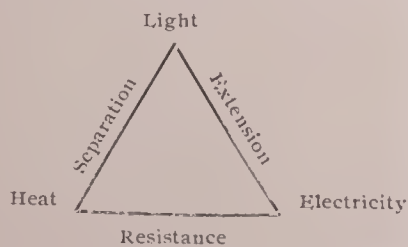
On the positive side of the concept Quality, the affective Pressure, and the effective Integration are the polar phases of Magnetism, which is their formal expression or equivalence, its Reality being Limitation. The correspondent, in the Philosophical, of Limitation is Subject-ion, whose Idea, Reality, answers to Magnetism in the Physical, while Generalization corresponds with Pressure, and Affirmation with Integration.

The simplest formal expression of the concept Quality is that which embodies in one formula the electives of its three subsidiary concepts, as follows :



Here we see that Electricity is the affective and Magnetism the effective of Quality, as the elective. Quality is thus the formal or equivalent expression of Electricity and Magnetism, which are its negative and positive phases, as Formation, the reality of Quality, is the formal expression of its polar phases Extension and Limitation.

The organic nature of the several formal concepts which make up the Physical division of the mental constitution, depends on the mutual relation of its various parts, as affective, effective, and elective, in accordance with the dynamic formula of Law. The same principle runs throughout the several subdivisions of the Physical itself, which constitute an organic unity, just as the several subdivisions of the Philosophical are so united as to form an organic whole, the sub-concepts of its affective and effective divisions having a special relation to the sub-concepts of its elective divisions. Hence, in the Physical the negative concept Light in the elective must be regarded as specially related in the affective and effective to Heat and Electricity, while the positive concept Gravitation is specially related to Chemical Affinity and Magnetism. In the following diagrams are represented the three negative and the three positive sub-concepts of the Physical, to exhibit their organic connection :

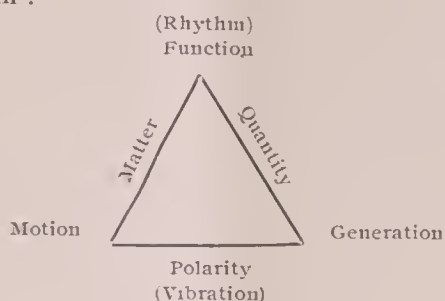


In accordance with the law of polarity, Heat and Electricity are thus the negative and positive, or affective and effective aspects of Light, which is the formal expression of those two phases of energy, as Chemical Affinity and Magnetism are the negative and positive, or

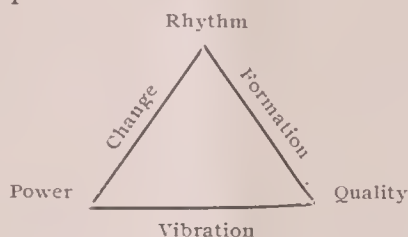


affective and effective aspects of Gravitation, which is thus the formal expression of those two forces.

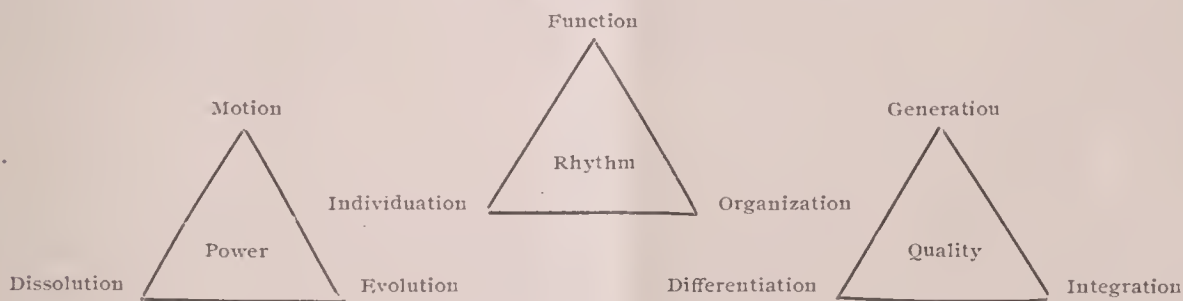
These may be supplemented by a representation of the several concepts which constitute the elective elements of the three formal concepts of which the Physical is composed. These, owing to their formal character, are more expressive of the organic nature of this division of the Mental Constitution than its negative and positive elements, and a representation of them is given in the following diagram :



Here Function, as the elective of Motion and Generation, and Polarity, as the elective of Matter and Quantity, are the highest expressions of the activity of the Physical, a fact which is brought out still more clearly in the following diagram, in which the Ideas and Realities of the elective concepts are alone represented :



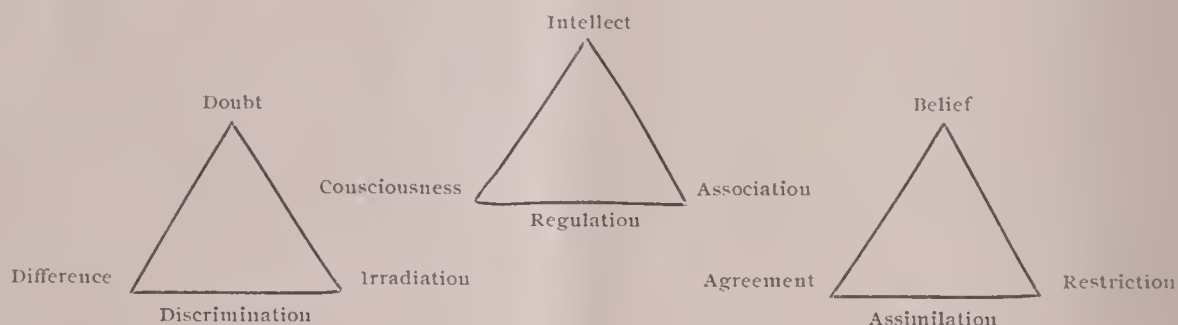
From this diagram we see that Rhythm is the formal expression of Power and Quality, which are, however, merely Ideas for Change and Formation. These are the affective and effective aspects of Vibration, the Reality of Rhythm, and thus in Vibration is summed up the whole functional activity of the Physical. Nevertheless, a representation of the dynamic formula of each of the divisions of the Physical may be given for comparison with the dynamic formula of the Philosophical as figured at page 10. They are as follows :



The dynamic formula of Power here figured answers to the dynamic formula of Law in the Philosophical, as indeed this governs the structure of all formal concepts, and hence Motion, as the elective, is the formal expression of Dissolution and Evolution. Function, moreover, is the formal expression of Individuation and Organization, which are its polar affective and effective aspects, and Generation stands in a similar relation to Differentiation and Integration. But Motion and Generation as the electives of the concepts Power and Thought, constitute the affective and effective phases of Function, which may be described, therefore, as the formal or equivalent expression of Motion and Generation.

As the highest dynamic aspects of the Physical, these polar phases of Function correspond with Election and Identification, which occupy a similar position in the Philosophical. Moreover, Function, as the expression of Motion and Generation, answers to Correspondence in the Philosophical, which is the formal expression of Election and Identification. What was said above (p. 11), therefore, as to the importance of Correspondence, will apply also to Function. Nevertheless the former, as belonging to the highest division of the Mental Constitution, has a significance which the latter does not possess. And yet, as the Physical forms the basis, on the negative side, of the Philosophical, as the Psychological forms its basis on the positive side, the formulas of these two divisions of the mental constitution are applicable, as we shall see, to the explanation of the Philosophical itself, which would be as impossible without Function as the Physical would be without Correspondence.

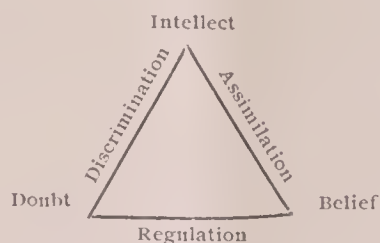
It still remains to consider the formulas of the Psychological division of the Mental Constitution, but as some of the terms on the negative and positive sides of Will are not satisfactory to the author of the Theory, as being apparently social rather than individual,\* its examination will not be so detailed as that of the other divisions. It is hardly necessary to repeat that all alike are constructed according to the same principles, and that the three formal concepts of the Psychological reproduce the type of the dynamic formula of Law, each having its affective, effective, and elective elements, which represent its negative, positive and formal aspects. The position which, as an organic whole, the Psychological occupies in the system of the mental organization is that of effective, and it is from one point of view intermediary between the Physical and the Philosophical, although more strictly it must be regarded as one of the supports on which the Philosophical rests. The last named division, in fact, stands in the position of elective to the two others, and as the elective is the formal expression of the affective and effective, we will consider first the elective of the Psychological to see how far it corresponds with the elective concepts of the Physical and Philosophical. The three subsidiary concepts of the Psychological elective take the following form when represented diagrammatically :



Here Doubt, with its affective and effective phases Difference and Irradiation, is the negative aspect of Intellect, of which Consciousness and Association are the affective and effective phases, while Belief, with its two phases, Agreement and Restriction, is the positive aspect of Intellect. According to the law of polarity, Intellect as Consciousness and Association emerges out of Doubt and Belief, of which it is the formal expression ; or, it may be said that Regulation, the Reality of Intellect is the equivalent expression of Discrimination and Assimilation. If we compare the above formulas with those of the Philosophical elective given at page 7, we see that Doubt corresponds with Analysis and Belief with Synthesis, while Intellect answers to Logic in its philosophic sense. The other terms of the several related formulas agree equally well, and they must, therefore, correspond also with those of the Physical elective, which has already been compared with the Philosophical.

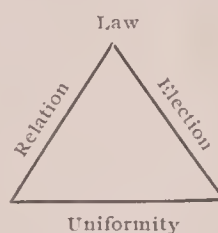
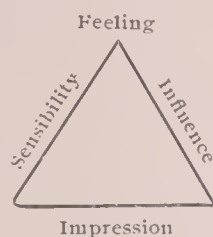
\* My own opinion is that the affective of the Psychological has reference to man as an Individual, and the effective to man as a member of Society.

If the above formulas of the Physical elective are organically united through their elective elements they take the following diagrammatic form, in which the Ideas occupy the angles, and the Realities the sides of the figure :

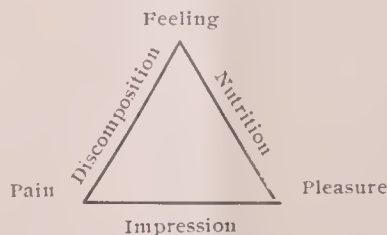


We see from this diagram that Doubt is Discrimination and Belief Assimilation, these being the negative and positive aspects of Intellect, and therefore of Consciousness, which is its static condition.

As the formal elective concept sums up the whole of the Physical in itself, so the elective of each concept which forms a sub-division of the Physical sums up the whole concept of which it is the formal expression. In the following diagrams we have a representation of the elective of Feeling, and also for comparison the elective of Law in the Philosophical :



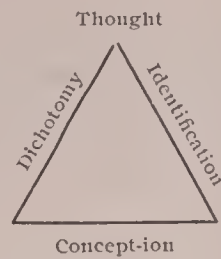
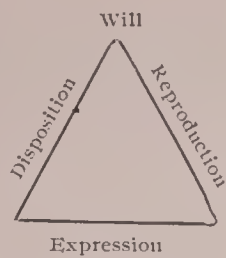
Here we see Feeling, as Impression, under the affective and effective aspects of Sensibility and Influence, of which it is the formal or equivalent expression, as the magnet is the formal expression of its negative and positive phases. In comparing the concepts Feeling and Law, it must be remembered that they are on different planes, and that the latter as Philosophical supplies the principles which govern the operations of the former. Thus Relation is the legal condition of Sensibility, and Election is the legal condition of Influence, just as Matter and Motion are their physical conditions, while Impression is Uniformity in Feeling. The true nature of Feeling will be better exhibited, however, in the following representation of its three-fold aspect, as negative, positive and formal, which may be regarded as a correct expression of the Ideas and Realities which enter into its composition :



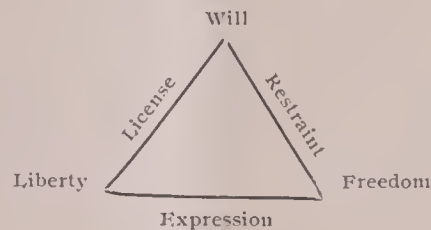
According to this diagram, Pain and Pleasure are the affective and effective phases of Feeling, which as Impression emerges from Discomposition and Nutrition, its polar aspects. In their physical relations, however, Pleasure may be said to arise from the aggregative action of the chemical process in Nutrition, a term which applies to the organism as a whole, and therefore Pain is due to a process of decomposition set up by the separative action of heat.

The elective of the formal concept Will, and also that of the Thought concept in the Philosophical with which it has to be compared, are given in the following diagrams :



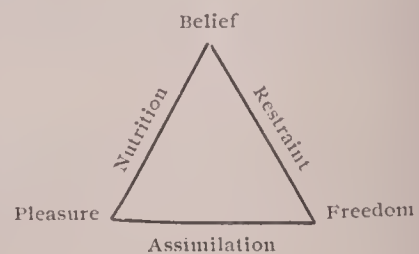
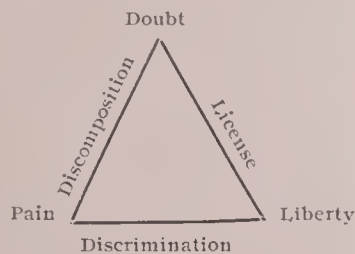


From this formula of Will, we see that it is the formal expression of its affective and effective phases Disposition and Reproduction. Thus Will as Expression is Reproduction under the conditions furnished by the Disposition, just as Thought, as Concept-ion, is Identification under the condition of Dichotomy. Hence Identification must possess the element of Reproduction, which may be found in Language, and as Disposition corresponds with Dichotomy, the former, like the latter, must have a dual relation. This, indeed, follows from the law of polarity, which requires that every formal concept shall have a negative and a positive aspect. The elements of the formal concept Will are exhibited in the following representation of the Ideas and Realities that form the electives of the three subsidiary concepts which enter into its composition :



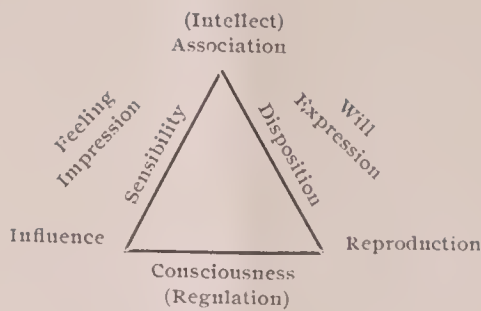
Here Liberty, as the negative or affective phase of Will, is Expression under the condition of License, while Freedom is such expression under the condition of Restraint, which answers to Subject-ion in the Philosophical. We thus see that Freedom of Will is just the opposite of Liberty, the latter being the expression of unrestrained disposition, while the former is disposition brought into Subject-ion through Thought.

The organic unity of the three parts of the Psychological division of the mental constitution may be exhibited in the following diagrams, which represent the Ideas and Realities of the subsidiary concepts constituting its several sub-divisions :

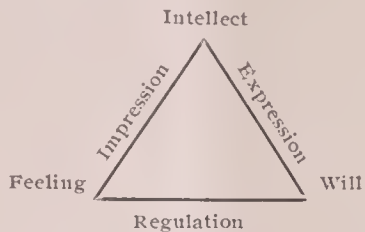


As thus arranged, Pain and Liberty are seen to be the affective and effective aspects of Doubt, which gives them formal expression, exhibiting itself as Discrimination under its polar aspects of Discomposition and License. In like manner, Pleasure and Freedom are the affective and effective aspects of Belief, which gives them formal expression, exhibiting itself as Assimilation under its polar phases of Nutrition and Restraint.

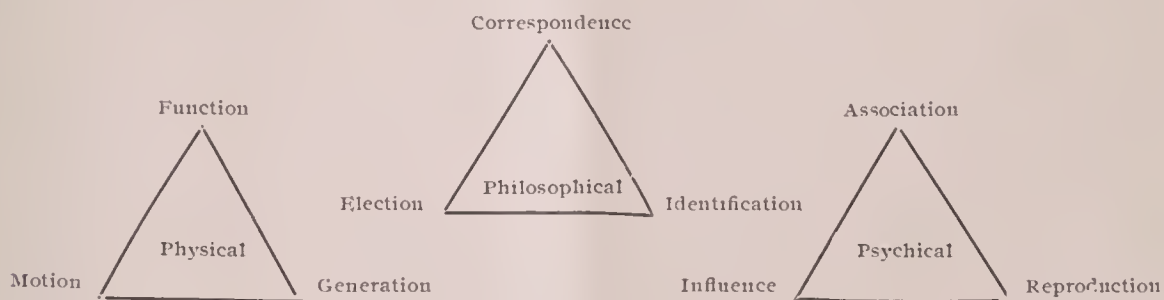
The above diagrams may be supplemented by the following, which brings together the electives of the formal concepts constituting the Psychological division of the mental constitution, and is therefore an exhibition of its highest organic unity :



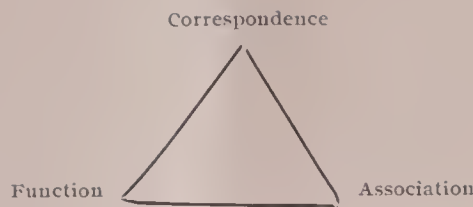
In this diagram Association exhibits itself under the affective and effective aspects of Influence and Reproduction, while Consciousness, which stands towards Association in a polar relation, gives formal expression to Sensibility and Disposition. Consciousness is, however, the condition of Regulation, the Reality of Intellect, and thus may be described as summing up the whole Psychical nature, which, however, under its three-fold aspect as Feeling, Will, and Intellect, may be represented as follows :



When considering the Philosophical division of the mental constitution, reference was made to the importance of its dynamic formulas. Each of the divisions of the Psychical also has its dynamic aspects, which are equally important on their particular plane. It is not necessary to formulate them here, but it may be well to give a diagrammatic representation of the three highest dynamic aspects of the Psychical, for comparison with the corresponding terms of the Physical and Philosophical. These are brought together in the following diagrams :



In this scheme, the affectives Motion, Influence, and Election correspond, and, therefore, they are all phases of Motion. There is a similar correspondence between the effectives Generation, Reproduction, and Identification, and the electives Function, Association, and Correspondence. As Motion is the affective of the affective in the above formulas, it must be the condition of their functional activity throughout, although this is on different planes, and it may be said that as Motion (of Matter) generates Function, so Influence (of Sensibility) reproduces Association, and Election (of Relation) identifies Correspondence. These electives may be combined so as to represent a still higher dynamic expression of the mental constitution, as follows:



In this formula Function and Association are the affective and effective aspects of Correspondence, which may be said to emerge from them as their formal expression. Here we have the explanation of the importance assigned to Correspondence, which was before declared to be the key to the Theory of the mental constitution. It is not only the Philosophical phase of Function in the Physical and of Association in the Psychical, but as the elective in the above formula it is their equivalent expression.

This fact shows that the Theory can be thoroughly understood only by tracing the connection of each portion of it with every other portion. The whole system is one, not merely of correspondence, but of mutual dependence, arising from its polar arrangement, and the more thoroughly this dependence is established, the more perfect the mechanism of the system must be. It has already been shown, that the system regarded as a whole consists of three series of elements, the affective, the effective, and the elective, and that these elements are distributed regularly throughout all the formal concepts of which the Theory is composed. It follows, that all the elements of a particular class, that is, the affectives, the effectives, and the electives, have special relations among themselves, apart from the relations which they bear towards the elements belonging to another class with which they are associated, as forming part of the same concept. Thus not only are the formal concepts comprised within each division of the Theory of the mental constitution united as a whole, but the three affective elements which enter into their formation are specially related among themselves, as are also the three effective elements and the three elective elements. Moreover, the elements of a similar character throughout all the divisions of the mental constitution are thus related, so that all the affective elements may be said to form one group, all the effective elements another group, and all the elective elements a third group.

But further, the elements belonging to each of these groups have a particular relation among themselves, which is governed by the position of the formal concept to which they belong with reference to the other concepts forming with them one of the three great divisions of the mental constitution. Thus, although all the affective elements are specially related, yet those are the most closely related which belong to a concept which is the affective of one of those divisions. And such is the case also with the effective and the elective elements, which while forming a large group comprising all the elements of the particular class, are separated into sub-groups consisting of the elements belonging to the affective, the effective, or the elective concepts as the case may be. A kind of extended sub-group is formed by the combination of the elements of the formal concepts which fall together, as being on the same negative and separative or positive and aggregative side of the mental constitution within any one of its main divisions, such elements being more nearly related than those on the opposite side of such divisions. These various connections are shown by lines drawn diagonally across the diagrammatic representation of the Theory, all the elements joined by a common line being specially related.

It has already been mentioned that, as the Philosophical emerges from and is the formal expression of the Physical, which constitutes its affective base, and of the Psychical, which constitutes its effective base, the Philosophical must be more particularly related to the Physical on its affective, which is also its negative and separative side, and to the Psychical on its effective, that is its positive and aggregative side. In considering, therefore, the inter-relations



of the various parts of the Theory, we will begin by tracing the connection between the several elements of the affective concepts of the Physical and Philosophical, and then proceed to show that of the affective elements of their elective concepts, which, as we have just seen, are nearly related to the former as being on the negative side of the mental constitution.

In the first place, it must be noted that the basis of Uniformity in the Philosophical concept Law is to be found in the Physical, and that the operation of the factors of the Physical concept Power is governed by the terms of the concept Law. Thus, Relation has reference to Matter and Election to Motion, the legal condition of Matter being Relation, and Motion being governed by Election; that is, the Motion of Matter which constitutes Change is the Election of Relations which constitutes Uniformity, and thus Uniformity in Change is the law of Power.\*

Turning now to the negative sides of the affective concepts under comparison, we see that Heat and Separation answer to Space and Negation, and thus the privation of its opposite, or positive and aggregative election, which forms the condition of the Affection on which depends the Negation called Space, must correspond with the Energy which forms the condition of the Dissolution on which the Separation known as Heat depends. But as Motion is the dynamic aspect of Matter, so Election is the dynamic aspect of Relation, and we may say that Space is a separative condition of Matter depending on energy attended with Dissolution, and that Heat is a negative condition of relation depending on privation of positive election, which is itself, however, only a form of motion.

On the positive side of the concepts, we find that Chemical Affinity and Aggregation correspond with Time and Position, and therefore Number, the condition of the Effect on which depends Position in Time attended with Election, must answer to the Force which forms the condition of the Evolution on which depends chemical aggregation. Hence Time may be said to have relation to the aggregative condition of matter depending on Force and accompanied by Evolution, while Chemical Affinity is a positive condition of matter depending on number of elective motions.

Referring now to the negative side of the elective of the formal concept Logic, we see that Space is connected with the Persistence of Parts on which Analysis or Induction depends, and thus that privation of positive election is consistent with persistence of Parts. But on the negative side of the elective of the formal concept Rhythm in the Physical, Analysis and Induction answer to Light and Resistance; while Heat must be connected with Individuation through Repulsion, on which Light depends; and thus Energy with Dissolution is consistent with such Individuation, which is indeed only the Physical aspect of persistence of Parts in the Philosophical, as Light Resistance is the physical expression of Analytic Induction.

We will now proceed to compare in like manner the elements of the effective concepts of the Physical and Philosophical, including the positive side of the elective concepts, as these are specially associated with the former. Considering first the electives of the concepts Quality and Thought, we see that Concept-ion is a Formation, as on the other hand Formation is a Concept-ion. This view is confirmed by the fact that the function of Formation is Generation, and Identification as a function must therefore be Thought generation. The static condition of Concept-ion is Dichotomy, showing the co-operation of two factors, and this is implied, therefore, in Quantity, the static aspect of Formation. Thus Quality is the Ideal expression of Formation through the co-operation of two elements, as Thought is a similar expression of Concept-ion through such a co-operation.

\* A quantity of Matter generates a formation. The formal expression of the motions generated is named Quality, or Qualities, and they appear as a condition in Polarity. In like manner dichotomized relations generate a formation of related motions which we call Thought, and they appear in the form of a condition as Mathematical.—J. J. V. N.

The two elements which enter into the formation of the concepts Quality and Thought are their negative and positive aspects, which must correspond in their affective and effective phases, as well as in their elective phases. Thus the Idea on the Philosophical plane is Electricity on the Physical plane, showing the source of mental activity, and as the condition of the former is Abstraction and that of the latter Tension, these must be correspondents. The operation performed on the physical plane is Differentiation, which answers to Contradiction on the Philosophical plane. This is a process of Differentiation, and its result, Object-ion, is an Ideal Extension, of which Electricity represents the Idea.

On the positive side of the Thought concept we have Reality, which answers to Magnetism, whose reality Limitation is the physical correspondent of Subject-ion. The condition on which Reality in Thought depends is Generalization, answering to Pressure the condition of Magnetism, and Pressure and Generalization may be said to be correspondents on their different planes. The operation of that physical force is Integration, an operation equivalent to Affirmation which, as the third law of Thought, is the assertion that an object is either A or non-A.

If now we compare the positive sides of the electives of the concepts Logic and Rhythm, we find that the dynamic aspect of the former is Continuity, which in the Physical exhibits itself as Organization. The condition of the latter is Attraction and it gives Wholes in the Philosophical. Here Continuity has reference to the process of Object-ion and Subject-ion in Concept-ion, which is that of Synthesis or Deduction. So, also, in the Physical, Organization has relation to Extension and Limitation in Formation, and this is one of Dependence or Gravitation. Hence Gravitation answers to Philosophical Synthesis, of which the polar phases are Idea and Reality as the polar phases of Gravitation are Electricity and Magnetism.

We are now in a position to see whether the relations between the electives of the concepts Logic and Rhythm are of a similar character. The dynamic aspect of the former is Correspondence, which, according to the principles above laid down, answers to Function in the Physical, both alike being the expression of equivalence in the functional activity of all the parts of the concept. The condition of this activity is in the one case Mathematics, and in the other case Polarity, both of which terms imply the co-existence of two elements, positive and negative, plus and minus. The Reality of Logic is Revelation under the condition of mathematical Correspondence, as the Reality of Rhythm is Vibration under the condition of polarity in Function. But further, as the physical equivalent of Relation is Vibration, so this is itself revelation, and the philosophical correspondent of Rhythm is Logic, which, as we have seen, is synonymous with Wisdom, that is, Truth. Thus, Truth is mathematical correspondence, and its physical basis is functional polarity, or polarity in function.

We will now turn to the Psychological division of the mental constitution, which stands in the position of effective with reference to the Physical and the Philosophical divisions, which are the affective and the elective. The Psychological therefore constitutes the positive aspect as opposed to the Physical which is the negative, the Philosophical being the formal aspect of the mental constitution. They have, therefore, a mutual dependence, and it is evident that the relations between the Physical and the Philosophical considered above can be realized only through the agency of the Psychological, which may thus be regarded as the medium of operation. From this standpoint, we see that Uniformity as Law is related to Change as Power, through Impression as Feeling, and thus the uniformity of change to which Law and Power refer is in Feeling. The condition of this is Sensibility and its function Influence, and therefore the Matter and Motion which are affected by Change, must be Sensible matter and influential Motion, that is, such as will establish a psychological relation and election.

Again, Separation as Heat is the condition of sensible decomposition or Pain, and the



Space negation in the Philosophical must have reference to this psychical affection. Moreover, the condition of Privation, and its operation Affection, also have their basis in Feeling, as Dissonance and Aversion due to Energy and Dissolution, attended with Separation in the Physical, which is Discomposition in the Psychical, and Negation of Relation in the Philosophical. On the other hand, Position in the Philosophical is the chemical aggregation of Nutrition in the Psychical and Physical, attended with Consonance in the Psychical, arising from the action of physical force and Evolution, and with the setting up of a number of relations in the Philosophical. The effect which is the activity of Number, we see to be the satisfaction attendant on physical evolution, which is said to be the phase of change that accompanies chemical action and that gives a pleasurable feeling, and sets up the positive relation of Time which corresponds with Pleasure. Time thus seems to be the measure of the changes in the sensible organism which are attended with the aggregative action of chemical affinity and are therefore pleasurable in their nature.

As the affective of the Psychical is specially related to the affectives of the Physical and the Philosophical, so the effective of the former division of the mental constitution is specially related to the effectives of the latter divisions. Thus Dichotomy in Thought is expressive of Disposition, the Physical condition of which is Quantity, as its Psychical operation is Reproduction. The Physical correspondent of this is Generation, its philosophical activity being Identification, which is thus reproduction in Thought, attended with Concept-ion as its effect, the Physical effect being Formation which in the Psychical is Expression or Will. Will has a dual operation, as negative and positive, and we see that Object-ion is the philosophical expression of License by Extension, the condition and result of License being Anarchy with Waste, corresponding with Tension and Differentiation in the Physical and Abstraction and Contradiction in the Philosophical. On the positive side of Will, Freedom is opposed to Liberty as Reality to Idea in the Philosophical, and Magnetism to Electricity in the Physical, and thus Subject-ion is restraint by Limitation, its condition Generalization being Order through Pressure, and its operation Affirmation being Economy through Integration.

We have now only to trace the relations of the elective concept of the Psychical to the electives of the other divisions of the mental constitution. It is evident that the negative phase of Intellect, Doubt and Discrimination, answers to Analysis and Induction, their physical condition being Light, which as Resistance depends on Individuation by Repulsion, with Irradiation through Difference in the Psychical, and Persistence as Parts in the Philosophical. On the other side we see that Restriction in the Psychical, under the condition of Agreement, and attended with Assimilation, is physical Organization, depending on Attraction and giving Dependence, and philosophical Continuity, depending on Wholes, which exhibits itself as Deduction. Finally, if we compare the elective formulas, we see that Mathematical Correspondence, which depends on Polarity in Function, arises through Association in Consciousness, and that Philosophical Revelation is the result of the psychical Regulation of physical Vibration, Logic being thus the Rhythm of Intellectual activity.

Before concluding, reference should be made to the rule which would seem to govern all the operations of the Mental Constitution, as exhibited in the Theory. From the fact that this embodies throughout the law of polarity, and that all its relations are Mathematical, we may infer that the algebraic signs + and - could be substituted everywhere for the positive and negative terms of the formal concepts with which the Theory is built up. This is an important feature of the System, for it enables the quality of an act to be ascertained without difficulty, simply by reference to the algebraic rule that

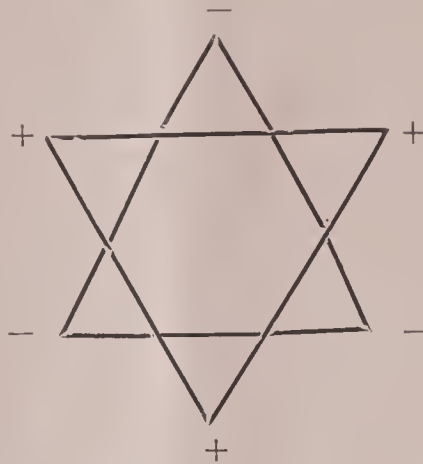
$$\begin{array}{cccccccc} + & \times & - & \text{gives} & - & + & \times & + & \text{gives} & + \\ - & \times & - & \text{gives} & + & - & \times & - & \text{gives} & - \end{array}$$

It is an axiomatic truth that an Act is an Impression (Feeling) and an Expression (Will),



and if we "substitute signs of the rule for divided factors of Impression and Expression, of same quality, placing them in corresponding positions," the quality of an Act can be stated in terms of the rule, that is, by plus or minus signs, the former being good as positive, and the latter bad as negative. But the dynamic aspect which exhibits the actual result of any such act, and the plus or minus term by which it is expressed, must be sought for in the upper, that is, the elective or formal concept, and not in either of the lower.

For example, the two minuses Aversion and Waste give by their union Restriction, as do also the two pluses Satisfaction and Economy. In like manner, Aversion and Economy, as well as Desire and Waste, being a plus and a minus, give Irradiation, and this rule applies throughout the whole of the divisions of the Theory, and their several terms, the affectives being negative or minus, and the effectives, positive or plus. It is evident that each of the three divisions of the Theory may be represented diagrammatically as two triangles, one of them negative and the other positive, the former comprising all the affective elements of the three formal concepts within the division, and the latter comprising all the effective elements. The affective triangle will, therefore, be minus and the effective triangle plus, and if they are placed opposite to each other, as follows, they form a figure which furnishes a key to the Theory :



Here the triangle pointing upwards represents the negative or affective elements, and the triangle pointing downwards the positive or effective elements, the apex of the triangle in each case representing the upper or elective concept, and therefore being the point towards which the signs converge. Thus two signs of a *like* quality, whether plus or minus, on *opposite sides* of the dual figure, always converge at the *plus* apex, while two signs of a different quality converge at the *minus* apex. The above figure should represent equally well every division of the Theory, and may be used, therefore, for each of them. This is not really opposite to the connection pointed out above (pages 9, 20, 24), between the several sub-concepts which enter into the construction of the formal concepts comprised within those divisions.

The assertion made at an early page that the Mental Constitution is an organic unity has now been fully justified. The Theory must, therefore, be regarded as the exhibition of that unity, and thus as itself possessing an organic character. It regards the human mind as the organic embodiment of universal truth, and its highest term Logic as the Universal which comprises all its lower terms. Logic is itself exhibited, however, as a formal concept, and it is the application of the principle of the formal concept to the mental constitution that gives the Theory its special features. The concept is formed according to the law of Polarity, which requires that it shall have three elements, of which the affective, answering to the negative aspect, is separative, the effective or positive is aggregative, and the third is the elective or

formal, that which impresses on the concept its organic character. The law of polarity, further requires that each of those three elements shall have three terms, which constitute its static, dynamic, and formal aspects. The same law governs each division of the mental constitution, as it is made up of three formal concepts arranged as affective, effective, and elective elements, the three chief divisions of the mental constitution being themselves similarly arranged.

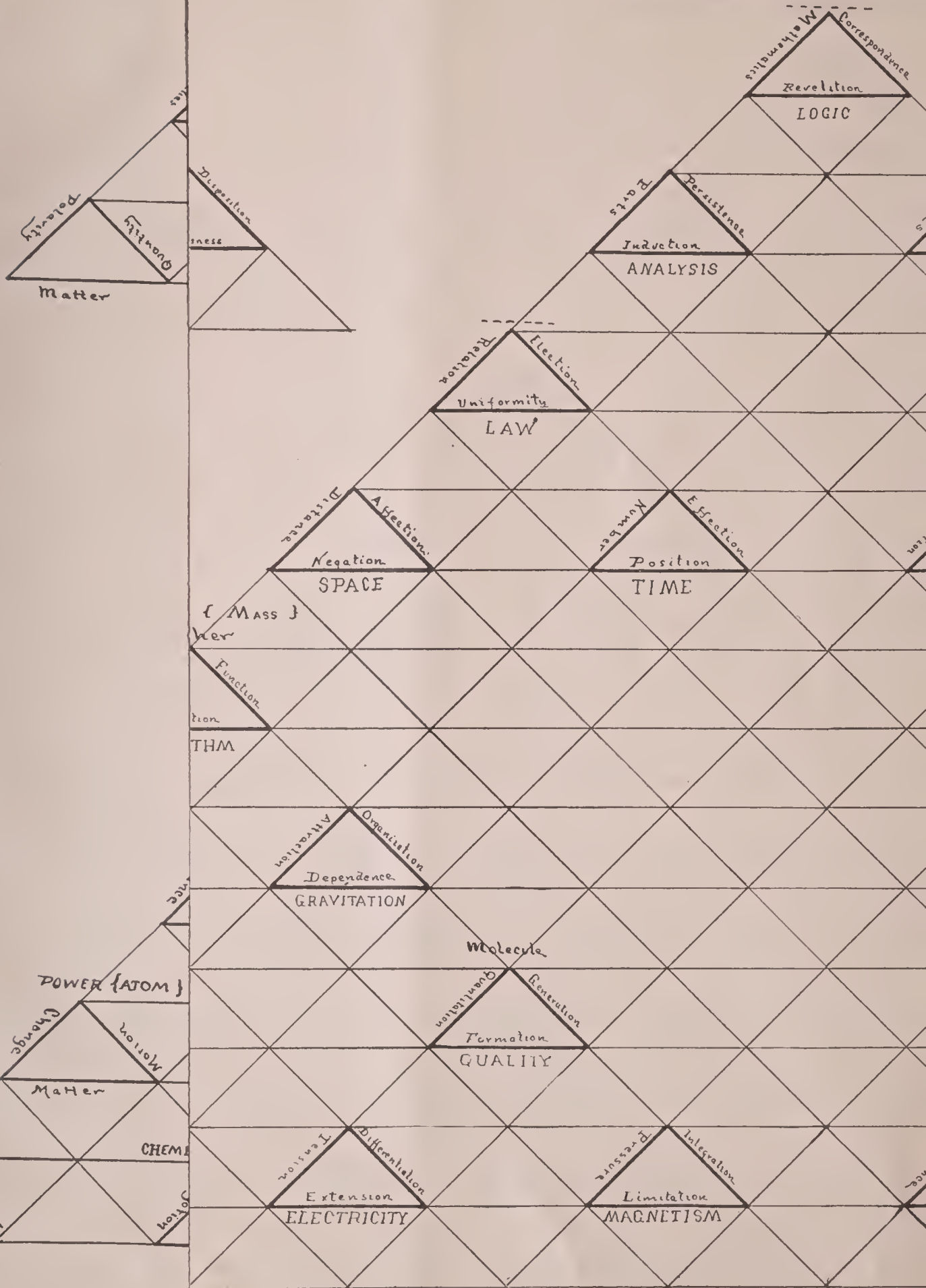
Hitherto the materials collected by science have been thrown together in the semblance of a building, some parts of which show more architectural appearance than others, but, as remarked by Mr. Van Nostrand, it has not been designed with mathematical precision. It is the object of the Theory to provide the plans and specifications necessary for the erection of the temple of science in accordance with mathematical principles, while itself illustrating those principles in every part of its structure. The Theory is thus strictly mechanical in its nature, and may be regarded as a formulation of the static conditions of the organized machine, and of the co-operative functions through which its dynamic activity is displayed. But its perfect mechanism appears to me to be evidence of Intellect, and to preclude the idea that the mental constitution is of strictly material origin. The value of the Theory depends on its organic character, which is exhibited in the relations between the several formal concepts of which it is composed, and in the structure of the formal concept itself. But the mechanical application of the law of polarity has a tendency to hide the true organic nature of the Theory, and therefore of the mental constitution which it represents, and on which the value of the Theory itself ultimately depends.

The Mental Constitution must be regarded as an organic whole, and therefore if we trace it to its beginnings in germ this will be found to contain the potentiality of all that has developed from it, just as the original simple protoplasmic cell contained potentially all the phases of organic existence which have appeared since the dawn of life on the earth. There is nothing to show that the physical element of the mental constitution could give rise to the Psychological and Philosophical, except as already part of an existence organic in its nature; and we may argue by analogy that this is only a phase of an universal existence which, like man or the primordial protoplasm, is organic. We may, in fact, declare that the Theory really represents a double process, that, on the one hand, by which the Divine Mind reveals itself in Nature, and that, on the other hand, by which Nature reveals the Divine in the human mind. In this case, the human mind must be regarded as the reflection of the divine as exhibited in nature, and the Theory, as a revelation of human nature, must be a revelation also of Nature itself as divine.





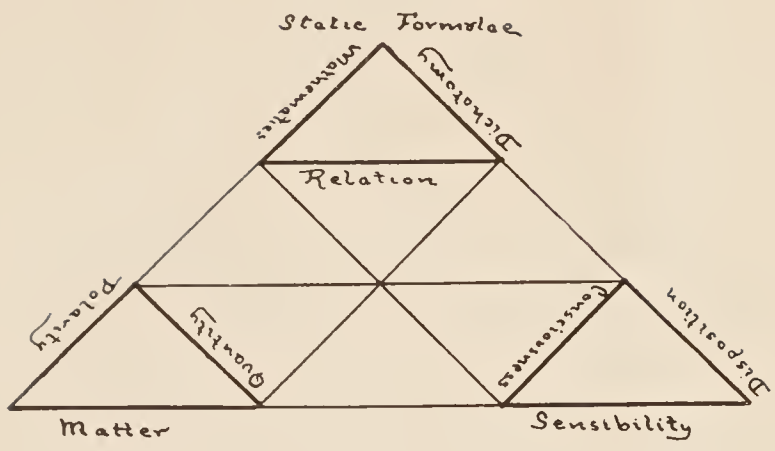
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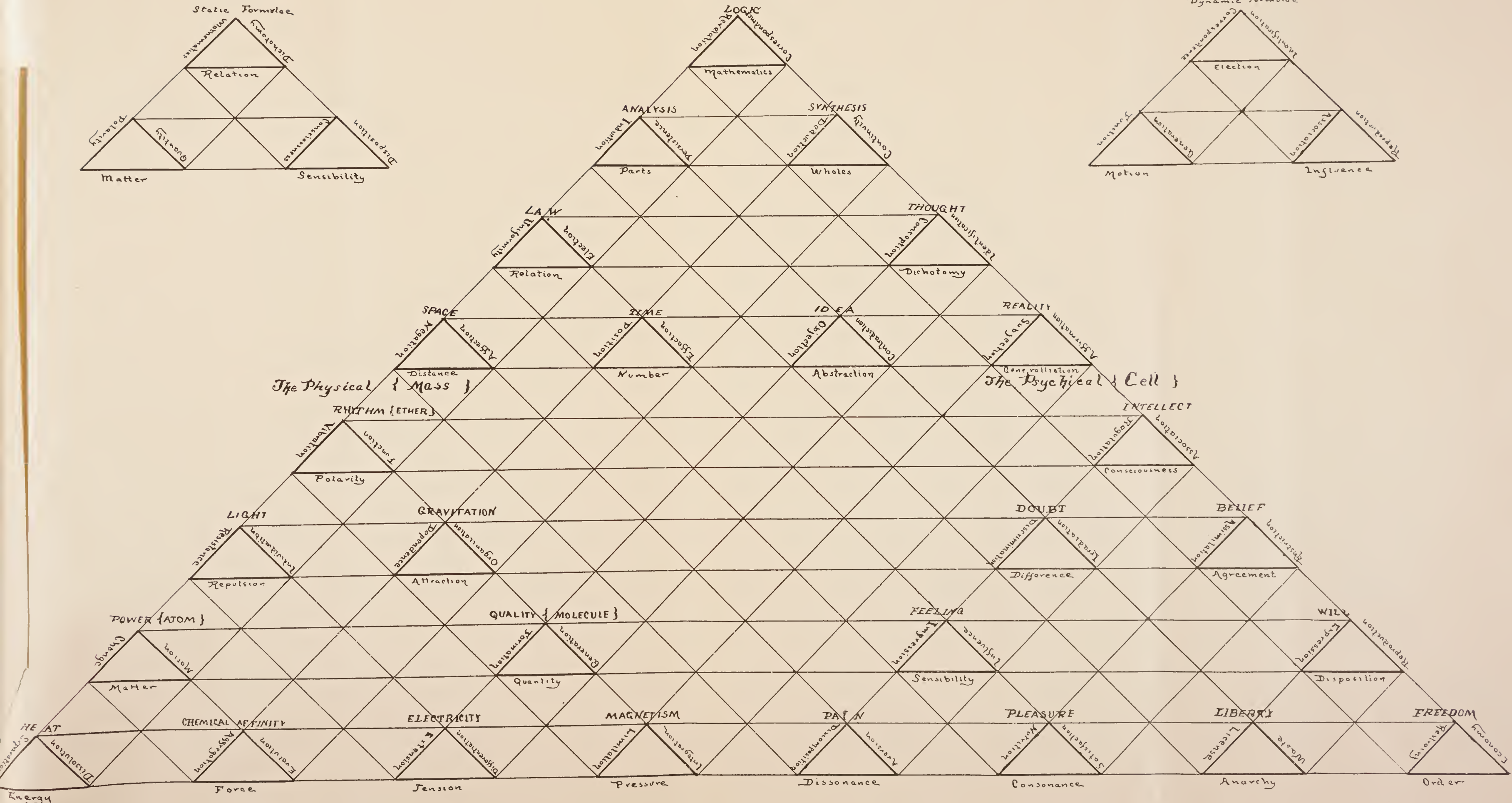
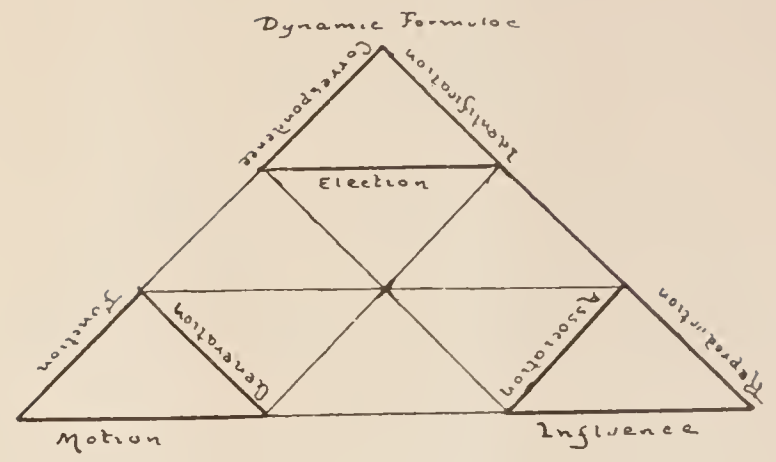


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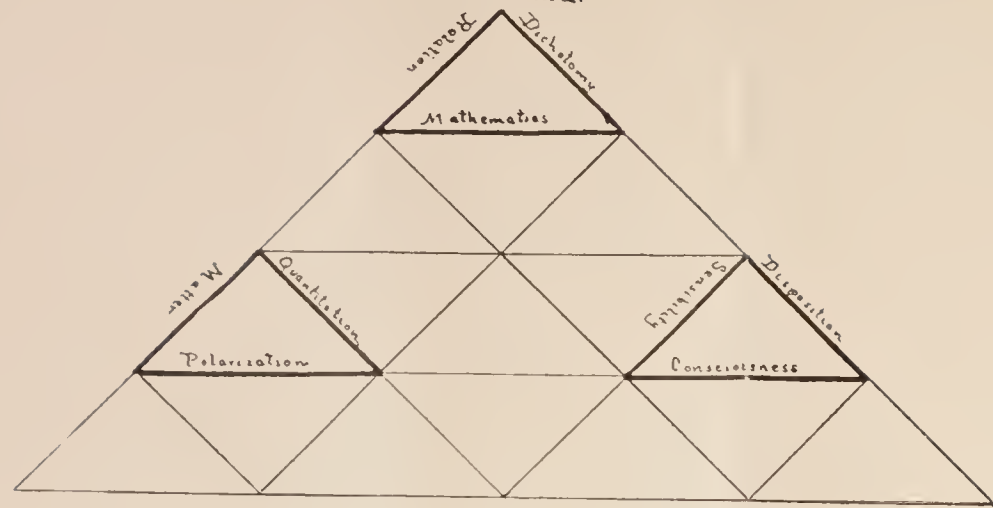




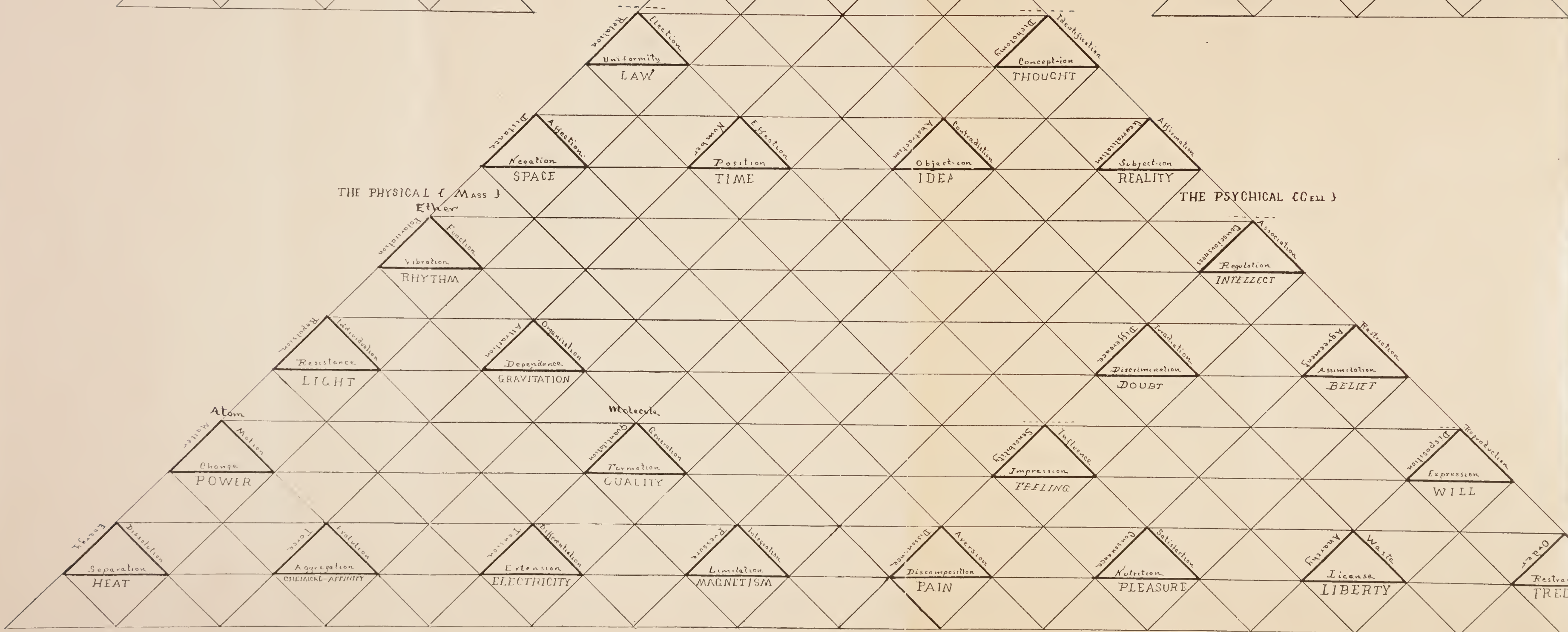
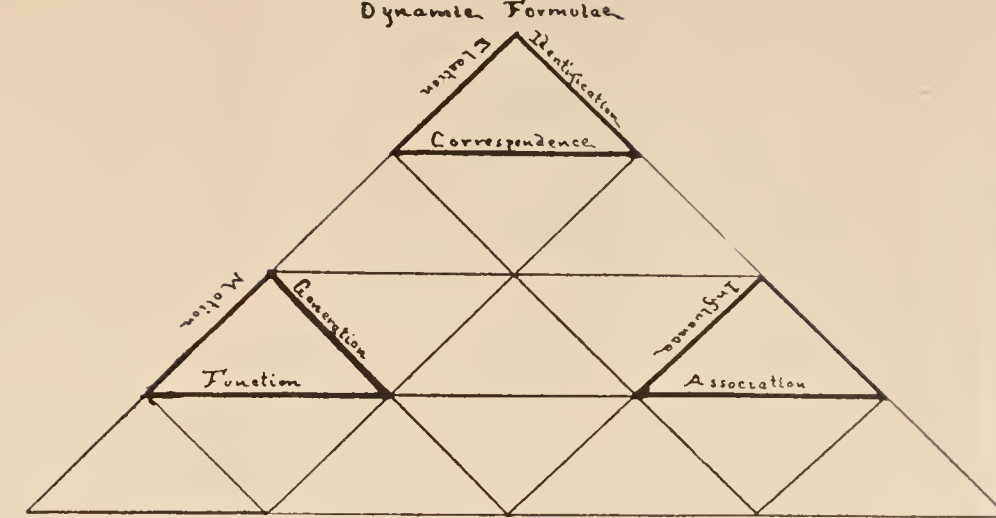
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