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## THE FORMAL.

Science begins with the application of formal thought, viz., with counting, measuring, and classifying. Only with the assistance of the formal sciences can we master the material of the sensory data of our experience, and thus it happens that the formal is the condition, not of any kind of experience, but of every systematic experience.

The formal sciences are the tools of cognition. That to which they cannot be applied remains unexplained.

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The various formal sciences are constructions of a purely formal nature. Thus, numbers are a system of units (i. e. empty forms), the logical categories a system of ideas representing the various relations that can obtain among things, etc. These and other systems of pure forms do not exist ready-made, or in a latent form in the mind, but must be constructed out of the purely formal elements obtained from experience by abstraction.

Animals are incapable of making abstractions, and that is the reason why they cannot develop formal thought. Abstraction is the condition of the evolution of formal thought, for all the formal sciences move in a definite sphere of abstraction.

We have to distinguish between the rigidly formal, the purely formal, and the empirically formal. The last kind of formality comprises the real forms of things with which we become acquainted in experience. The purely formal is to be found in the laws of stereometry, Euclidean geometry, etc., while logic, arithmetic, and algebra are rigidly formal.

What is the difference? The rigidly formal is the product of mental operations alone. Our mental activity alone is given. Otherwise there is no assumption whatever; no hypothesis, no axiom. In arithmetic we count our mental acts, we add and subtract them; and out of these operations the whole magnificent structure of a great formal science is created. We construct and observe the products of our construction. There is nothing but certain mental acts and the consequences involved in these acts. In all the rigidly formal sciences we combine and separate and recom-

bine. By naming the same products with same names and equating the outcome of two sets of operations with the same results, we create the material of our science ourselves, as the spider spins the web that is to serve him as his field of operations, out of his own being. Says an old rhymster:

*“Logicus araneæ potest comparari  
Quæ subtiles didicit telas operari,  
Quæ suis visceribus volunt consummari  
Et pretium musca si forte queat laqueari.”\**

—Tom Wright, “Political Songs of England,” p. 209.

Mathematics and pure mechanics are not quite so rigidly *a priori* as arithmetic and algebra. Their constructions introduce some additional features which may be called assumptions or axioms, or derivations from experience, or common notions.

Whatever we may call them, they are arbitrary; they do not result as a necessary consequence from the operations with which we start.

While in the construction of rigidly formal sciences we have no choice left, we find that in the purely formal sciences there are several constructions possible. In Euclidean geometry, for instance, we execute, at the suggestion of the real space-conditions that surround us, one peculiar construction, because this special kind of geometry is most serviceable to us; but there are other possibilities left, and we can imagine analogous geometries built by the same mental operations but starting from other suppositions.

Euclidean geometry is a construction in which, through one point to a given straight line, one parallel only can be drawn. We can, however, construct other kinds of geometry in which, through a point to a given straight line, either no parallel at all or several parallels can be drawn.† Besides our tridimensional space we can conceive of four, five, and *n*-dimensional spaces, and can with perfect precision define all the

\* The logician may be compared to a spider who has learned to weave fine webs, which will be produced from her bowels, and the reward is a fly if she haply can catch one.

† The latter assumption, viz., that through a point to a straight line several parallels can be drawn will produce a space of negative curvature, while the former assumption admits of two possibilities, either two straight lines enclose a space (as, for instance, on the sphere) or two straight lines do not enclose a space—which produces elliptic geometry so-called, first observed by Klein. It is doubtful which case Riemann had in mind. (Translated from a private letter of Professor Lindemann in which he kindly gave a brief exposition of the situation.)

qualities which such spaces and their bodies must possess.

It is a matter of course that as soon as we have created, by some arbitrary construction, a certain feature in a formal system, we have to stick to it and take all its consequences. When we speak of triangles of Euclidean space, we cannot attribute to them the qualities of triangles in Lobatschewsky's or Riemann's space. Each geometry forms an independent domain for itself. None of them is truer than the other; and none of them should be confounded with the other.

The term "rigidly formal" is narrower than "purely formal." All rigidly formal truths are at the same time purely formal, but not all purely formal statements are rigidly formal.

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Modern geometry proves that our notion of space is not rigidly formal; it is only purely formal. The statement that real space is tridimensional is not a necessary product of our mental operations. It is not on one and the same level with the statement  $2 \times 2 = 4$ . The latter is intrinsically necessary. There is no other possibility left.  $2 \times 2$  will always be the same, and whatever we have called it, so we shall have to call it again, or at any rate regard it as equivalent and equal. Space, however, for all we know *a priori*, might be four or five or *n*-dimensional; and whether or not the world-space, i. e. the form of reality, is tridimensional is a matter of experience. Thus the statement, real space is tridimensional, contains an empirical or *a posteriori* element. It does not contain any information about the material world, the information it conveys is purely formal still, but it is not rigidly formal. It cannot be proposed as the only possible condition of being, for there are other constructions possible and imaginable. Tridimensional space is one instance only among innumerable possibilities, and we have through experience from *a posteriori* arguments sufficient reasons to believe (or if you prefer, to be assured) that this one instance is realised in the actual world in which we live.

Assuming then, from *a posteriori* arguments, that world-space is tridimensional, we can forthwith *a priori* apply to it all the laws of tridimensional space. All the various systems of Euclidean and non-Euclidean geometry, of mathematical or any other imaginable space-constructions are purely formal notions. But they are not the inevitable consequence of our mental operations only, they contain, each system its own peculiar conditions, which are arbitrarily established. Their character is not necessary, but might be otherwise.

Arbitrary constructions of such a nature have been called "axioms" and are now commonly called "assumptions." The one term is as bad as the other. The

name "axiom" suggests that there are indubitable but improvable truths, and the word "assumption" implies that we take some supposition for granted which may not be correct. We might assume the impossible or that which is contradictory to the consequences of the operations with which we start. We might assume that  $2 \times 2$  is sometimes 4 and sometimes 5. The word assumption suggests the idea that our procedure is unfounded. We have neither to accept any truth without proof, nor are we allowed to make assumptions. Employing the mental functions which we possess, we can construct; and there is a choice, whether to construct a plane geometry or other geometries. But a choice is no assumption.

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If the difference between the rigidly formal and the purely formal had been kept in mind by modern mathematicians, much confusion and many errors rising out of confusion would have been avoided. It has been said, for instance, that we do not know whether or not the sum of the angles in a plane triangle is exactly  $180^\circ$ ; it may be somewhat more or less. They grant that it is very approximately so and declare that even the greatest triangles we can measure are too small to discover the deviation. As instances parallaxes of stars have been adduced, which make measurements on triangles whose sides sweep through cosmic space over the whole stellar universe; but it is a pity for this class of geometers that such deviations as are found in these calculations keep within the reasonable limits of errors which occur in all analogous cases of observation. True, that among about forty measurements two only come out negative. That might be an argument in favor of a slightly curved space; but we can surmise that many other negative measurements have been suppressed as obviously erroneous.\* This view is based upon a misconception of the nature of the formal sciences.

A modern geometer may deny that world-space is tridimensional, but he cannot deny without inconsistency that the sum of the angles in a plane triangle is  $180$  degrees, for it is so by construction and cannot be otherwise unless we reverse the conditions upon which we have made the construction.

Suppose we construct a circle and propose the theorem that in a circle all the peripheral angles upon equal cords are equal, intending to prove that this follows with necessity from the qualities of the circle. Having done so a geometrical friend of ours steps in and denies the validity of the argument. He says, "The peripheral angles on equal cords in a circle as large as the orbit of the earth round the sun are approximately but not exactly equal. Your theorem may be right within certain limits and will be sufficient for

\* *The Monist*, Vol. 1, No. 2, p. 173-174.

all the small circles which occur in our practical experience. But whether it holds good generally is very doubtful still. In order to know that, we shall have to make more exact measurements with circles as large as the milky way. Within a century our children will probably know more about it than we do now with the insufficient material at our disposal."

What would we tell him? We should tell him that a circle remains a circle as much as a plane triangle remains a plane triangle; astronomy may prove that the orbit of the earth round the sun is only approximately a circle (celestial bodies move in conic sections, our earth moving nearly in a circle), but it can as little prove that peripheral angles on equal cords are only approximately equal, as the measurement of parallaxes can induce us to believe that the sum of plane triangles is only approximately not exactly equal to  $180^\circ$ .

Suppose that the parallaxes of stars really showed that these world-sized triangles of astronomy really and regularly measured somewhat more or less than  $180^\circ$ , what would be the conclusion? Would we indeed have to revise our mathematics and declare that mathematics is only approximately true? No, we should conclude that the rays of light do not travel in exactly straight lines, that their path is only approximately straight. However, whether or not the rays of light travel in straight lines is not a purely formal question at all; it is an empirically formal question, which has as little to do with pure mathematics as the question whether apples are exact or only approximate globes.

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Important as is the difference between the rigidly formal and the purely formal (a difference entirely overlooked by Kant), the difference between the purely formal and the empirically formal is greater still. It is so obvious, however, that it has scarcely ever escaped attention and has led to the well known distinctions between purely formal mathematics, mechanics, logic, etc., and applied mathematics, mechanics, logic, etc. The purely formal sciences exclude all the incidental deviations of real objects, while the applied formal sciences take notice of them, introducing them as factors in their calculations.

How near Kant came to the solution of the problem which actually explains all and is in our opinion the only satisfactory answer possible, viz., that *the formal sciences are purely formal constructions*, will be seen from the following passage in Kant's preface to the second edition of his "Critique of Pure Reason."

"A new light must have flashed on the mind of the first man (*Thales*, or whatever may have been his name) who demonstrated the properties of the *isosceles* triangle. For he found that it was not sufficient to meditate on the figure, as it lay before his eyes, or

the conception of it, as it existed in his mind, and thus endeavour to get at the knowledge of its properties, but that it was necessary to produce these properties, as it were, by a positive *a priori construction*; and that, in order to arrive with certainty at *a priori* cognition, he must not attribute to the object any other properties than those which necessarily followed from that which he had himself, in accordance with his conception, placed in the object."

After this explanation Kant falls back upon the theory that the *a priori* or purely formal elements are *given* by the mind, which is quite another thing than *constructed* by the mind. If they were "given by the mind" they would exist in the mind as a latent knowledge, in the same way that we know many things of which we are not conscious and to recollect which may require considerable mental effort. But if they are constructed by the mind, we need only look upon certain mental operations as given. The products of these operations are the object of the formal sciences. And in this way we can indeed escape all the perplexing consequences of Kant's transcendentalism.

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Kant was puzzled that we could know anything *a priori* concerning the constitution of things. He saw only two possibilities; either, he said, we have derived this knowledge from the things by experience, or we ourselves have put it into the things to which it really does not belong. The former possibility being excluded, since the purely formal truths are *a priori*, Kant accepted the other horn of the dilemma declaring that our faculty of cognition did not conform to the objects, but contrariwise, that the objects conform to cognition. The objects do not in themselves possess form, but our mind is so constituted that it cannot help attributing form and everything formal to the objects of our experience.

Kant did not see that form might be a property of all existence that, in that case, the purely formal in things would be of the same nature as the purely formal in man's mind.

Nature is throughout activity, and so our existence is throughout activity. Nature is constantly combining and separating; and these same operations are inalienable functions of our mind. They are given together with our existence.

When we construct some purely formal configuration with our nature-given mental operations, it will be the same as any other construction which has been made in the same way, be it in the domain either of things or of other minds. Nature performs the same operations which appear in man's mental activity. Being a part of existence, what is more natural than that man's bodily and mental existence partakes of the same form as all the other parts of the world that surrounds him.

A great and important part of our knowledge consists of rigidly formal theorems; they are *a priori*.

And these rigidly formal theorems contain actual information concerning the real world. And why? Because they are systematic reconstructions of a certain feature of reality by operations which take place throughout the universe. When Kant says: Our mind "dictates" certain laws to the objects of experience; he uses a wrong expression or takes a poetical license seriously. The mind "dictates" nothing to reality. Reality is independent of what we think it to be. That which Kant calls dictating is a mere determining, a mere foretelling or predicting by constructing in our mind an analogous model.

The agreement between our model and reality proves only that the model is correct, it does not prove that the model does any dictating. The model dictates as little to reality as a barometer dictates what air-pressure there is to be in the atmosphere.

The purely formal gives information concerning things so general that they are the same throughout the universe, and the rigidly formal concerning things so universal that they are the same in all possible universes.

P. C.

#### THOUGHT-CONCEPTION.

BY C. STANILAND WAKE.

IT is affirmed by Prof. Max Müller that in every act of the mind we distinguish three things—the act, the instrument or faculty, and the result or product. Thus, the concept is said to be the product of conception as the act of the intellect, the faculty. This is not, however, a proper application of the term "faculty," seeing that the intellect is neither a mere mental form or aptitude, nor a faculty in the proper sense, as defined by Mr. G. H. Lewes, of the acquired variation of activity of an organ. The intellect is, indeed, sometimes called the regulative faculty, but it is in reality a function of the material organism, or rather of the highest part of it, the brain. The concept which results from the act of conception is a thought-unit, and hence it is the product of that phase of thinking which answers to conception. Although there is much difference in the use of the term thought (thinking), yet most psychologists practically agree in their conclusions. Lewes affirms that the thinking process is common to all psychological phenomena, but he distinguishes between thought by images, which animals possess along with man, and the thought by signs or symbols which is the special attribute of man. When it is said that man alone can think, it is intended, therefore, merely to assert that he alone thinks by means of language symbols.

Agreeably to the wide sense in which he uses the term thought, the author of "Problems" affirms that animals as well as men have language. He says: "Language in its widest sense cannot be denied to animals as a function of expression of feelings—the language of gestures and cries is even made by them a rudimentary function of communication. But this function never becomes a faculty, and above all never rises to the expression of ideas, the communication of knowledge." Thus animal language is not human language, the language of signs, which as Prof. Max Müller asserts, is the product of thought, using this term in its higher sense, as thinking by means of symbols. From this point of view, it is evident that language and "thought" are inseparable, that is, one cannot exist without the other. The faculty of language is, therefore, at the same time the faculty of thinking, and the thought and the word have been formed together as internal and external expressions of one and the same mental operation.

The truth of this conclusion is evident from the consideration that "thought," although not audible language, is nevertheless actually uttered. It is not at all unusual for thinking to be accompanied by spoken words unconsciously produced, which is popularly called "thinking aloud"; and many persons cannot read without forming the words with the lips, the sound of which may or may not be audible. If the process of thinking is attended to, it will be found that the thought-symbols or words are really produced as vocal representations, as though they were reverberations in the brain of words before spoken aloud. The constant activity of thought is thus the continual passage through the mind of the phantoms of words previously uttered. The brain may be likened to a telephonic apparatus which is constantly repeating the language impressed upon it, language which under abnormal conditions of the nervous system may appear to the subject to be actually spoken by an inner voice quite independent of himself. Usually this is a proof that the law of association has ceased to operate harmoniously, and that discord has thus been introduced into consciousness. Under normal conditions and in wakeful moments, the flow of thought or unspoken language is under the regulation of the intellect, which by its inhibitive and directive power may guide thought into a special channel or rearrange the sequence of its symbols, and if necessary render them really vocal. In sleep the regulative principle is no longer operative, and under that condition thought appears to be on the lower level of the subconscious, but its verbal symbols are recognised and often appear to take on the vocal form. This is the most apparent, however, between sleeping and waking. Often when about to fall asleep have I heard a voice speak as though conversing, but when aroused by it, as was usually the case, I have known that it was a mere phantasy of the brain.

It was said above that the thought and the word are internal and external expressions of one and the same mental operation. Every word must be, therefore, a concept or thought unit, while language as a collection of symbols is the necessary accompaniment of the activity of conception or thinking, the consideration of which fact throws great light on the origin of language. For until the intellect was able to carry on the process of conception, no concept could be formed, and therefore there could be no language. As soon as that process commenced, however, thought-symbols would be intuitively formed and language developed. This must have been in the earliest infancy of the human race. The possession of language in its highest form is the very test of humanity, because it is vocal thought, and an animal that has not the power of thinking, that is, of using signs in the process of thought, is not a human being. The origin of language in "the definite sense of expression of conceptual thought by conceptual words," is that of conceptual thought itself. As Prof. Max Müller affirms,\* the science of language clearly shows that every word coincides from the very beginning with a general concept. How words originated is of secondary importance, but the explanation given by Noiré, that they were "the *clamor concomitans* of the conscious acts of men" is perhaps the most probable. Every word would be the vocal expression of a thought, and as language would be useless, if possible, without society, it would from the first express the general thought, which thenceforth would be represented by the uttered sound or word.

Hence language and thought are not merely two sides of the same thing; they are the same thing in different relations, that is, in relation to others sensible and insensible, although in relation to self they may be equally sensible. Unspoken verbal thoughts may be represented to the mind as both visible and audible symbols, just as any other images or sounds may be thus represented. This was evidently recognised by the ancient Greeks who, as

\* *Three Lectures on the Science of Language*, pp. 92, et seqq.

pointed out by Prof. Max Müller, used the word *logos* in the sense of discourse, whether internal or external, showing that they had a knowledge of the identity of language and thought. This truth has an important bearing on the question of the origin of language, which according to Noiré's theory is that of the concept itself. The explanation given by this theory of the "natural genesis of concepts" is accepted by Prof. Max Müller, who finds that the germs of all conceptual language, the so-called roots, "express with few exceptions the repeated acts of men"; and concludes that as, according to Noiré, "the germs of all conceptual thought were to be found in the consciousness of our repeated acts," these two processes were "but two sides of one and the same process in the evolution of human thought and human language." Moreover, "as the sounds which accompanied the common acts of men, and the remnants of which became fixed as roots, were used not by one man only, but by men acting in common, they were intelligible to the whole community."\* And yet T. Bailey Saunders affirms that its assumption of "ideal intuition" is destructive of the value of Noiré's system as an account of the origin of reason, and that this theory does not offer any real explanation of the rise of conceptual thought. Mr. Saunders goes so far, indeed, as to affirm that such an explanation is not possible, a view which it is not difficult to show is erroneous.

According to Noiré's theory a word is an audible presentation, produced by an act of will, of some visible representation in the external world with which it is invariably connected. This connection consists in creative action—"men engaged in some common activity relieve their feelings by the utterance of cries at the same time, as the product of their work is growing under their hands." The fact that any particular sound becomes representative of a particular action is due to the power of association, and as soon as this association takes place, the essential resemblance of all like operations is recognised by the faculty of ideal intuition, which operates as a binding force or *logos*. The combination of the object and the word is a concept, and the main attribute of our reason. The object is only particular and the sound is only particular, but when once the meaning of what we see has been discovered and expressed by a sound, "once the object has been named, the generality of its nature is affirmed and we have a concept." The will is the root of all activity, and "as the object produced by the will unites in itself the three forms of time, space, and causality, it comes into being under the influence of ideal and wholly universal conditions." Mr. Saunders well observes that while Kant and Schopenhauer proved the important part played by the *subject* in the acquisition of knowledge, Noiré has shown "how indispensable in the same connection is the *object*, which can be known only, he declares, by being named, and reason is impossible without speech." †

It is remarkable that in the Old Testament legend of the garden of Eden, Jehovah is represented as bringing the animals he had created to the first man, to see what he would call them: "and whatsoever the man called every living creature, that was the name thereof. And the man gave names to all cattle, and to the fowls of the air, and to every beast of the field." The animals thus brought before the man were afterwards known by their names, just as the objects referred to by Noiré were known by the names given to them by man. But what led to the giving of particular names, or in other words, what was the principle which guided man in his conceptual work? Noiré says "ideal intuition," by which the mind perceives the causal nexus between the object and the sound by which its meaning is expressed. This explanation, however, in reality explains nothing. The basis of the whole process is sensuous experience, and the genesis of the concept lies in the passage from that experience to the knowledge of the ob-

ject, which consists in its being named. To take an example given by Noiré, the *hole* which was formed by the common activity of a number of men must have been seen and observed by them in the course of construction. When it was completed its fitness was recognised, and a cry was uttered, as the result of the recognition, by the common voice. But what caused the cry? Surely not the sudden idea, arising spontaneously in several minds, that the product of the joint labor was a hole. The hole must have been made for a purpose, and the cry was the assertion that the purpose was fulfilled; or, rather, it should be said that the cry was a continuous or repeated one, while the purpose was being fulfilled. In other words, it denoted the possession by the object of a quality, which the cry thenceforth connoted.

Hence, the giving of the name did not spring from the action of the will in relation to the object, but in the perception of a quality possessed by the object, *whether as the result of the human activity or of the activity of nature*. That perception was due to the activity of the intellect, which, and not the will, was the active principle in the origination of conception and of language. The intellect is the governing or regulating principle of the mind and hence of the will itself, which is merely the expression of the mental constitution. The organic condition of intellect is consciousness, which, as being higher than sensibility, has a perception, not of objects as sensuous impressions, but of that which gives "knowledge" of objects. This power of the intellect is what is meant by abstraction, but before we can abstract we must recognise that which has to be abstracted, and therefore it should be called insight. The function of the intellect is to regulate, but its faculty is that perception which gives a knowledge of the attributes of objects, that is, of their constituent qualities, which form the basis of generalisation, and therefore of reasoning itself.

Mr. G. H. Lewes, when treating of the sphere of intellect and the logic of signs, remarks that "animals and infants have various visual experiences of red, blue, brown, orange, etc., each of which can be re-instated through its image. But they have no *conception* of red, blue, or orange; they have no conception of color, which *unlike* red, blue, orange, etc., includes and symbolises them. In the phrase, 'red is a color,' we express what no sensation of red alone can teach. Color is not red, nor blue, nor green, nor orange. It is the sign of an operation, an abstraction from various experiences, a *logical act incorporated in a vocal act*." It is generally agreed that in this power of "separating the various aspects of things and fixing them in names" lies the source of man's mental superiority over animals, but whence comes this power? It is the activity of the intellect itself which takes cognisance, not only of the ever-varying phenomena of nature, but also of the qualities of objects on which the changes in such phenomena depend. The faculty of inner perception, possessed by the intellectual sight, may be identified with the faculty of reflection, which, according to Locke, is a chief source of our ideas, but it has a much wider objective range, as it is not limited to the observation of internal phenomena. Long before that faculty concerned itself with the phenomena of consciousness, it was engaged with the external phenomena of nature. Mr. Saunders asks in relation to Noiré's theory: "What is an ideal intuition, coming into play in the origin of concept, if it is not the finding and separating force of the mind which penetrates through sensuous experience to underlying unity?"\* But the separation must come first, as otherwise there could be no penetration, and the unity is conferred by the conception attendant on the process. The fact is, as I long since pointed out, † that in reflection on external nature the mind becomes cognisant of the qualities of objects as distinct from the objects in which they inhere. Those qualities contain in themselves, from their very nature as such, the possibility of generalisation,

\* *The Monist*, July, 1891, pp. 580-581.

† *The Open Court*, p. 2515 et seqq.

\* *The Open Court*, p. 2535.

† *Chapters on Man*, (1868,) p. 28 et seqq.

and the names by which they are symbolised are thus capable of expressing general ideas. It is indeed only by its qualities that an object is perceived through the senses at all, and on the mere presentation to the mind of an external object the impression produced by a particular quality might be intuitively represented in vocal expression without reference to any such combined activity of the will as Noiré supposes to have given rise to the first articulate sounds.

The primitive words used by man, although capable of expressing general ideas, would not be developed concepts, or even true concepts at all, in the sense of actually giving expression to general ideas. Although they represented objects through particular qualities, which, as possessed by other objects of the same kind, formed the basis of future generalisations, yet the objects themselves alone were taken cognisance of. It was only when, at a much later date, through the increased activity of the faculty of reflection, the full meaning of symbolic sounds, as containing in themselves the germ of generalisation was recognised, that the true concept was formed. This becomes clear when the genesis of the concept is understood. In this sense only can it be asserted that objects are not known before they are named, and therefore that animals cannot know objects. The perception of an object is a knowledge of it *as such*, or as a whole, although not of its qualities or properties; the separation of which by analytical reasoning explains away the objective reality. Lewes says, it is true, that "to the animal and to the infant there is but knowledge of particulars; the subject and the predicate are but one for them. Objects, therefore,—in one sense,—do not exist for them—only feelings connected with external signs. To us feelings with external signs are *attributes*, qualities of objects; but this is because we have reached the abstraction of *objects*, apart from their felt attributes.—in logical phrase, the distinction between subject and predicate,—and to us objects are not only present feelings, but syntheses of past and present; and these syntheses are reconstructed particulars, which are detached from their surroundings and are made to enter into new constructions."\*

Thus it may be said † that "language enables us to construct *objects*, in the philosophical sense of the term, by separately naming, and thus giving separate ideal existence to those feelings of a group which are invariable and predominant, as distinguished from the feelings which are variable and accidental." But this construction is not a creation of the objects themselves. It is merely an analysis of them, and their explanation in language which is an expression, not of the objects, but of our thoughts of them. As it is said, "words are not the names of things, but of concepts; and the concept expresses not the essential or true nature of the thing, but only what we are able to think of it." The concept expressed in symbol is an ideal representation of the object, and therefore a thought-creation, but it is a mistake to suppose that we cannot form a true notion, however limited it may be, of the object apart from the conception, and still more to affirm that the object does not exist apart from the conceiving mind. The object is first presented in sensation, and the perception of it through the senses is not only a knowledge of the object, but a *true* knowledge of it, so far as this goes. In fact, without this perception there could be no conception of the object, the image of which must first be received through the senses before the intellect can cognise those qualities which it afterwards recreates as the concept or thought-object in verbal symbol.

A perfect concept is a thought-unit, that is, it is the result of a complete application of the three primary laws of thought—a separation or division of the attributes of the object in accord with the laws of contradiction or limitation and excluded middle or affirmation, and a definition of the object under the law of identity,

which, as Lewes affirms, constitutes the principle of equivalence. The concept or thought-object is thus the expression of certain attributes abstracted by the intellect from the object as perceived. These attributes are dependent for their *separate* existence on the logical process of division, and although they are again identified in thought to form the ideal object or concept, yet the very existence of this concept is evidence not only of the existence of the real object which is reflected in thought, but also that it possesses the attributes which are embodied in the concept. The objectivity of both the external object and the verbal symbol in which the concept is expressed is equally real, although the reality of the former is in relation to sense-perception, while that of the latter is in relation to the thinking subject of which it is the creation; whereas the external object is not dependent for its existence on the perceiving subject. It is true that, according to Lewes, "the only meaning we can attach to Reality is that every Real has a corresponding feeling, or group of feelings, some of them actual, others virtual. Reals are objective judgments, and judgments are groups of subjects and predicates, sensations, and inferences."\* But we are compelled, by our mental constitution, to refer certain sensations to external influences, that is, to infer that they are due to the action of external objects, answering to the mental images which accompany such sensations. This is indeed required by, or is at least consistent with, the statement that the thing actually exists as a group of relations, and that we may view it either synthetically as a group, or analytically in its several elements. That is to say, "we may dissect what is *given* as a whole of feeling into what is *inferred* to be its constituent parts. We have what is here; and we seek to conjure up ideally the vision of what *was* there, and *will be* elsewhere." This is the ideal reality, but the external whole of feeling is none the less real as an object of sensation, although it has not been subjected in thought and thus entered into the realm of conception.

#### CURRENT TOPICS.

THE World's Fair Sunday closing question has reached the comic stage, and I must indulge in a little cynical amusement when I hear "most potent, grave, and reverend" councils of theological men denouncing the directors who propose to open the Exposition on Sundays, as "anarchists more deeply red with treason than the men who fired on Sumter." There is retributive satire in that compliment because the directors of the Fair and the stockholders in the enterprise belong to the classes who, with a few magnanimous exceptions, have condemned as "anarchists" nearly all the men in Chicago who have agitated for better laws and purer courts of law. They have stigmatised as "anarchists" nearly all the men who have criticised the ways of Mammon in Chicago, and who have pleaded for larger justice and more equal chances for the poor. How do they like the nickname when it is fastened upon themselves? To be sure, they retort in counter-flatteries and call those venerable divines "witch burners," "inquisitors," "bigots," "fanatics," and similar names of endearment, but there is not so much poison in all those titles as in the one mad-dog incantation "anarchist." In the language of Sir Lucius O'Trigger the dispute is "a very pretty quarrel as it stands," and I confess that I enjoy both sides of it. It reminds me of the Sunday question that broke up our little community at Marbletown, and divided the citizens into two hostile factions that hated one another for five years; and I enjoyed both sides of that. It was a curious example of the manner in which a national festival because it happened to fall on Sunday was crucified between two secular days; "which the same I would rise to explain."

\* \* \*

It was in the fifties; I forget the exact year, but no matter, it was the year in that decade when the 4th of July fell on Sunday.

\* *Problems*, Vol. III, p. 487.

† *Do.*, p. 489.

\* *Problems*, Vol. II, p. 42.

About a month ahead we called a meeting to make preparations for a proper observance of the day, Procession to the grand stand in the grove, Prayer by the Chaplain, Singing by the choir, Reading the Declaration, Oration, Free barbecue for all the country round, Sports in the afternoon, Fireworks in the evening, and Joe Ricks the blacksmith firing his anvil during the whole proceedings by way of a national salute. The entire programme was agreed upon in a friendly and patriotic way, when some spirit of mischief incarnate in Ben Strong prompted him to suggest what nobody had thought of, that the 4th of July came that year on Sunday, "wharfor," said Ben, "I would move Mr. Charman, if I could git a second, that we have the celebration on Monday the 5th." He did get a second, and then old Squire Norton moved as an amendment "that the celebration take place on Saturday the 3d." The debate on the question lasted until midnight, when the meeting broke up in a row, the Saturday men resolving to have the celebration on Saturday, and the Monday men going into training for a grander celebration on Monday than the Saturday men dared think of. I confess that I was on both sides of the question, for the dispute meant a double 4th of July for me, and all free of expense, wherefore I patronised both festivals with impartial patriotism. In addition to that, about fifty of us had a most delightful picnic by the big spring on the banks of the Marble river, and we had it on the exact 4th of July, speeches, songs, games, and all, on the very Sunday itself, which by its brightness appeared to be honored in the observance; and as far as the eye could reach, all nature smiled approval; the trees and the birds, the river and the fishes, the prairies rolling like the sea, and the proud imperial corn. All bore testimony that ours was the true American Sabbath; and years afterward, the Saturday men and the Monday men agreed that the only rational celebration of Independence had that year at Marbletown was the picnic of the Sunday men. It will be but a few years when all the sects will agree that the most rational, moral, and religious way to have honored the Sabbath in Chicago in 1893, would have been to throw the great World's Fair open every Sunday for the enlightenment, the instruction, and the pleasure of all the people.

\* \* \*

In the summer of 1848, I was returning from a semi-piratical picnic in which I had been engaged with four hundred other tumultuous young men. We were sailing the salt seas on board the crazy and rheumatic old ship "Russia"; and that old buccaneer was bringing us home from Mexico which we had invaded and trampled like reincarnations of the old Norse rovers who vexed the shores of England a thousand years ago. In the gulf we caught a monster shark and landed him on the deck where he flopped about in impotent rage while we smoked our pipes in his face and laughed at his vanished power. And ever since, when I see a monster tyranny shorn of its ability for mischief, still invoking evil, I think of that captive shark flopping about on the old ship "Russia" homeward bound from Vera Cruz to New Orleans. I saw him flopping again last Sunday morning at the Jefferson Park Presbyterian Church, where the pastor preaching against opening the World's Fair on Sunday, administered the sacrament of religious consolation to the communicants in this benevolent form, he said: "In some way God will save our Sabbath for us and take vengeance on those who have provoked him to anger. The cyclone is his and ten cases of cholera might produce a panic that would ruin the exposition." This heavenly hope roused the spirits of the congregation and gave a more spiritual tone to the succeeding hymn. This oblique foreboding was a prayer for pestilence and storm, and within the prayer was a sentence that once would have meant thumbscrew and rack and rope and fire for the men who would open to the people on Sunday anything so good as the Fair. Now the omen and the curse and the sentence and the old gothic anath-

ema are nothing but the floppings of the shark, helpless and dying on the deck.

\* \* \*

The patriotic struggle to make the United States of America the greatest and meanest of the nations is still going on, and with gratifying success in both directions. The World's Fair is the wonder of the age, and the Geary law has been declared constitutional by the Supreme Court. This act of congressional barbarity was not seriously meant; it was passed as a bid for the "sand lot" vote on the Pacific slope, and for some bits of the "working-man" vote in other States, in the hope and expectation that the Supreme Court would veto the law after it had served its demagogue purpose. This was another case of hanging yourself expecting somebody to come along and cut the rope; the Supreme Court sustained the law, to the disappointment of the vote-mongers who had passed it, and the President of the United States, ashamed of the ignoble duty cast upon him of transporting a hundred thousand Chinese denizens of this country innocent of crime, is driven to the humiliation of pretending that he cannot enforce the law, because he has no money to pay for their deportation. True, three of the judges dissented from the opinion, and we ought to be thankful for that. They held the law to be unconstitutional, for imposing "cruel and unusual punishments," and for abolishing trial by jury. One of them, the venerable Judge Field, with manly indignation, declared the law to be "brutal and inhuman," and he said that "every section of it violated the constitution." He very wisely added that the law was "fraught with the greatest dangers to the constitutional liberties of the people." This law cannot stand. There is not strength enough in the army and the navy to sustain it against the moral condemnation of Judge Field. No American in any foreign country will dare to defend it against the withering description of it given by Judge Field. We wantonly provoke the derision of the world, when with Geary laws among our national statutes we have the self-righteous vanity to send missionaries to China to convert the Chinese from Confucian barbarism to American Christianity.

\* \* \*

I have been favored with a copy of *The Moslem World*, a large, weekly, three-column, sixteen-page magazine, published in the city of New York. It is well printed on good paper and filled with articles of high literary merit and excellent moral tone. Its mission is explained in the following motto, "Devoted to the interests of the American Islamic propaganda." Its frontispiece is a graceful Moslem temple, illuminated by the crescent moon that guided Mohammed in his famous flight; and its prospectus, written by the editor, Mohammed Alexander Russell Webb, is courageous, dignified, and more tolerant than sectarian proclamations usually are. Mr Webb is an American who has made a pilgrimage in India, and returning to his native land he raises the standard of the crescent and challenges the cross to a comparison of morals, of bibles, and of laws. This is like the defiance hurled at Goliath of Gath by the stripling David, the son of Jesse; and like David, Mr. Webb advances to the conflict in the name of the Lord of hosts. It is a very exciting rivalry; the Christian having failed to convert the Mohammedan in Bombay, therefore, in hopes of better luck, the Mohammedan will try to convert the Christian in New York. If they would mingle their qualities more freely, both might be improved. Spiritually and morally the Christian ought to be more of a Mohammedan, while in worldly and corporeal attributes the Mohammedan might well be more of a Christian. While the two theologies are very much alike and somewhat in decay, I am inclined to the opinion of a major of my regiment who was ordered before the "Board" for examination as to his fitness for that elevated rank. Among other foolish things, they asked him to explain the comparative merits of the Christian and the Mohammedan religions. He answered thus: "Well, I think the

Mohammedan religion is the best, because it has only one God, while the Christian religion has three. Gentlemen, I'm a Unitarian."

\* \* \*

This week there is a conference of editors in Chicago; a Columbian Exposition of editors; editors of all sexes, nationalities, and colors; editors from all the corners of the earth; the most cosmopolitan gathering of miscellaneous writers ever known; more brains and information to the acre than was ever concentrated before since the world began. As Mr. Lafayette Young, one of the Western editors remarked, in the language of the boundless prairie: "Here, in this congress of thought, the nations of the earth are in committee of the whole on the condition of all mankind." Judging from the speeches, every editor present is qualified to be a professor of ethics in a theological college, and they all experimentally know just what a newspaper ought to be. In the language of that veteran editor, Colonel McClure, the newspaper "represents the enlightened progress of the age, liberalising government, liberalising the pulpit, liberalising everything." The layman, listening, wonders why men who know so well what the newspapers of other editors ought to be, publish their own on a different plan, and think only of what will sell. The demand is for news of a stimulating kind, and they furnish it. No doubt, saloon-keepers would rather sell milk than whisky; but they find a demand for fiery drink, and they sell what their patrons want, exactly as editors do. Colonel McClure gave censure and apology together when he said: "The sensational newspaper must have a sensation every day, or it ceases to have subscribers; if it has nothing to give, it must invent; it must so color the truth when it has it, that the truth ceases to be the truth." Certainly; newspapers are supported, not by moral precepts, but by subscribers, and it is not from "enlightened progress," but from subscribers, that newspaper dividends come. Subject to that slight mental reservation, every editor present soared aloft with Mr. Henry A. Castle, of St. Paul, in the following flight of eloquence, an excellent specimen of that free imagination which distinguishes our newspaper style in the West: "With solemnity of reverent benediction let the germs of unstained thought be sent forth on the ebbs and flows of a regenerated journalism. Floating or flying they will speed to nature's farthest verge."

M. M. TRUMBULL.

## CORRESPONDENCE.

### LEGERDEMAIN AND SPIRITUALISM.

To the Editor of *The Open Court*:

You will kindly permit me to say that it will afford me great pleasure and perhaps be of much value to many minds to engage Max Dessoir in just such a controversy as you hint, and it will personally afford me the highest satisfaction to know that among the few men of science Max Dessoir is open to conviction and truth. I personally ask the editor, if in the efforts of reconciling science with religion, which is the platform of *The Open Court*, it ever occurred that such reconciliation did not stop at or on the *material plane* and that it is the duty of *The Open Court* for the furtherance of science and knowledge to impartially examine the phenomena of spiritualism—an opportunity for such examination being presented right in Chicago. Let an impartial, honest, truth-seeking committee be appointed by *The Open Court* to make such investigations of these phenomena, as independent and automatic slate-writing, seership, clairvoyancy, clairaudience, trance-mediumship, inspirational speaking, and give the world its fearless verdict and results of such examination, and *The Open Court* will perform an inestimable favor to inquiring humanity. Will it do it, or is this tedious and tiresome process of the reconciliation of

science and religion to be limited to the domain of material science and so-called established philosophy. It seems to me that these phenomena need to be considered, or there is a reconciliation that is a pretense and delusion.

J. C. F. GRUMBINE.

[Spiritists have an inclination to brand all those views which do not endorse spiritism as materialism. And Mr. Grumbine, in a like manner, is inclined to reproach *The Open Court* with stopping "at or on the material plane." There is a great difference between believing in spirits, ghosts, or bodiless souls, and denying spirituality altogether. While we have no belief in spirits, we believe in the existence of spirit. We regard spirituality as the very essence of nature, and without it the world would be a meaningless heap of matter.

Mr. Grumbine expresses satisfaction at learning that Dr. Max Dessoir is "open to conviction and truth," meaning thereby, that he, unlike other scientists, cherishes the opinion that there is something in spiritism. It appears from this that others, who have reasons to distrust the facts of spiritism, are not open to conviction and truth.

In a like manner, a circle-squarer complains of the large body of scientists as not being "open to conviction and truth," because they refuse to investigate his solution.

We have reasons for not believing in spirits, as we have reasons for not believing in circle-squaring. But is it right to say that we are not open to conviction and truth? Disprove our reasons and we shall surrender them.

Should we find a good opportunity of investigating the problems of spiritism, clairvoyance, mediumship, etc., we shall be glad to avail ourselves of the occasion.—ED.]

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