

# THE MONIST

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## CONTEMPORARY RUSSIAN PHILOSOPHY<sup>1</sup>

TO give to a non-Russian reader an approximate idea of the meaning and content of recent Russian philosophy it is necessary to characterize the position of Russian philosophy in the nineteenth century. This position is determined by two historical conditions of a general nature: on the one hand, by the originality and the creative individuality of the Russian mental disposition, of the general tendencies and motives of the Russian mind; and, on the other hand, by the weakness of Russian science, its late development, and its dependence on the research of Western Europe.

Consider the large number of original and, in part at least, indisputably eminent thinkers which the Russian literature of the nineteenth century discloses—for instance, the leading spirits of the so-called “Slavophil” movement, Ivan Kireyevski and Alexi Chomyakov, or the most important representatives of the opposing “Western” direction, Chaadayev, Alexander Herze and Byelinski (in the 40’s of the nineteenth century; the original and gifted philosopher of history and religious thinker, Konstantin Liontyev (in the 70’s and 80’s of the nineteenth century); his contemporary, Pirogov, student of philosophical pedagogy; the Russian geniuses, thinkers and poets, Tyuchev,

<sup>1</sup> Translated by Karl Schmidt and Edward L. Schaub.

Dostoevski and Leo Tolstoi; the religious writer Rosanov (in the 80's and 90's), and the founder of the distinctive Russian school of religious philosophy, Vl. Solovyev. While each one of these thinkers is a pronounced individuality, they nevertheless together present a general picture setting forth an absolutely original and unified national type of thought and philosophy which we venture to call "the Russian world-view" and which is sharply distinguished from the traditional thought of Western Europe.<sup>2</sup> None of the thinkers whom we have mentioned is a philosophical investigator in the strictly scientific meaning of the word; at least, strictly scientific work with them plays but a subordinate part. As for the great artists, this is self-evident. But the others also were not scientific investigators; they were freely creating writers and intuitive thinkers, comparable, perhaps, to Nietzsche in Germany or Emerson in America.

There has, of course, also been another movement in Russia. After the founding of the universities (the first, Moscow University, was founded in 1755; the second, St. Petersburg, and the third, Charkov, in the beginning of the nineteenth century), there arose an academic systematic philosophy in the West-European form. Active in it were a number of rather able investigators. In general, however, its representatives remained considerably below the niveau of European philosophic investigation and were in their main ideas wholly dependent on it. Beginning with the 20's and 30's of the nineteenth century, there was a succession of Russian Hegelians and Schellingians who, in parallel with the development of European, and especially of German, philosophy, were succeeded by positivists, mate-

<sup>2</sup> An attempt to give a presentation of this "Russian world view" in its typical outlines I have made in my lecture, *Die russische Weltanschauung*, which will appear soon in the series of lectures brought out by the *Kant-Studien* in Germany. Cf. also S. Frank, *Wesen und Richtlinien der russischen Philosophie*, in the German journal, *Der Gral*, 1925, No. 8.

rialists, and later still even by neo-Kantians. But from the point of view of systematic philosophy there is scarcely any value in studying this whole body of literature. With a very few exceptions, it contains nothing of real importance or originality as compared with West-European philosophy. If one looks back upon this condition of Russian scientific philosophy in the nineteenth century, one is struck by the glaring contrast between the products of the original, intuitive thinking of Russian writers and the weakness of Russian scientific philosophy.

This condition underwent an essential change toward the end of the nineteenth century, in the 80's and 90's, primarily under the powerful influence of the philosophical activity of Vladimir Solovyev. During these decades—at a time of relative decline or stagnation in West-European philosophy—there began a powerful development of Russian philosophy, which from then on rested upon a union between science and intuitive national tendencies. The center of this movement was Moscow University, where, toward the end of the 80's, there was founded the first philosophical association (under the pressure of the censor, who was then inimical to philosophy, it had to be named "Psychological Association"); also the first purely philosophical journal (*Woprosy filosofii i psichologii—Problems of Philosophy and Psychology*). At about the same time there appeared the original and profoundly important scientific work of Leo Lopatin, *The Positive Tasks of Philosophy* (two volumes, 1884-1886) which, with fine dialectics and great thoroughness, demonstrate the untenability of the positivistic and criticistic points of view and finds the main task of philosophy to be a positive metaphysical ontology. Lopatin's analyses of the main problems of epistemology and causality, and of the concepts of time and of the soul, belong without doubt to the most important results of mod-

ern philosophical research. A decade afterwards, a highly gifted investigator in the history of philosophy, Prince Sergius Trubetzkoi (who, like Lopatin, was professor at the University of Moscow) published two important books: *Metaphysics in Ancient Greece* and *History of the Logos-Doctrine*, in which new light was thrown on the mystical and metaphysical meaning of ancient philosophy. Therewith was founded the Moscow school of metaphysical idealism. At the same time, in the 80's and 90's, we find at Kiev an original philosophical thinker, Koslov, who, in a journal written by him alone (*Swoje Slowo—My Own Word*), unmasks with biting irony the thoughtlessness of the ruling positivism and develops in a series of papers a metaphysics somewhat akin to that of Leibniz.

The movement just mentioned extended over into the twentieth century and gave rise to a powerful development in all fields of scientific philosophy in Russia. This philosophy on the one hand depended upon the contemporaneous development of systematic philosophy in western Europe, with the results of whose conceptual analysis it endeavored to equip itself. On the other hand, it attempted to absorb and scientifically to digest the original motifs of the Russian national mentality. Thenceforth Russian scientific philosophy was no longer the pupil of West-European philosophy, but felt itself—and we think rightly—its peer, and at the same time the guardian of a national Russian philosophical tradition. Unfortunately this promising development has during late years been strongly interfered with by the communistic revolution and the policy inaugurated therewith in higher education. During the terrible years of civil war and hunger, 1918 to 1921, there was scarcely any possibility of scientific work, and then, beginning with 1922, there started a systematic persecution (reminiscent

of the Middle Ages and of the Inquisition) of all non-materialistic philosophy, and an expulsion or a banishment from Russia of all philosophers not in accord with materialistic thought. In consequence, the greater number and the most influential of the Russian philosophers, who were at all able to save their lives, now live abroad; in Russia itself, pedagogical and literary activities in philosophy have, since 1922, become wholly impossible. We may only hope that this sad condition will not continue long enough to sever completely the thread of philosophical tradition.

We will now attempt to give a brief synoptic view of the principal results in the main fields of Russian philosophy during the last fifteen or twenty years.

### I. Theory of Knowledge.

The theory of knowledge in its German form, as determined by Kantianism, has never had a lasting or deep influence on Russian philosophy because it runs counter to the peculiar motives of Russian thought. The Russian Kantians were as individuals either wholly unoriginal or they appropriated Criticism in a form that completely falsified it. To this latter category belongs Alexander Vwedenski, recently professor at the St. Petersburg University. In his work, *Logic as Part of Theory of Knowledge* (1913), he develops Criticism into a sort of universal skepticism. He maintains that not only the forms of intuition and of judgment (categories), and the synthetic judgments *a priori* determined by them, but also the logical laws are nothing but subjective forms of human consciousness, so that all human knowledge rests on blind, unprovable belief. Therewith the logical law of contradiction becomes dubious in its ontological status. Every human judgment is thus put in doubt. Nay, even the difference between subjective and objective, between phenomena and things in themselves, is designated as purely subjective.

This theory of knowledge, therefore, cannot escape the inevitable defect of skepticism that it must appear dubious to itself. The deeper interpretations of Criticism, represented in classical German idealism as well as in the modern neo-Kantian schools, remained closed to Vwedenski. In all of them he suspected a dogmatic metaphysics condemned by Criticism.

Vwedenski's philosophical world-view remained isolated in modern Russian epistemology. The main current of the latter has run in a different, a primarily ontological, direction. To the typical Russian philosopher the theory of knowledge does not appear, after the manner of Kant, as a science which precedes metaphysics and holds the metaphysical needs within bounds, but (somewhat as is now maintained in Germany by Nicolai Hartmann) as the science which lays the foundations for metaphysics. After the above-mentioned attempt by Leo Lopatin to give a new justification for metaphysics, another Russian philosopher, also referred to above, Prince Sergius Trubetzkoï, published, in the 90's of the nineteenth century, a sketch of epistemology in which he maintains that the essence of knowledge consists in an actual transcendence of the limits of the knowing subject.

But the really fundamental work of the Russian theory of knowledge is Nicolai Losski's *Fundamental Principles of Intuitionism* (1905). Losski bases his doctrine upon a wholly original theory of consciousness, which is striking in its simplicity and which may be considered as a scientific renewal of so-called "naïve realism." Consciousness is not, as is usually supposed, a closed realm—or a vessel, so to speak—which has its contents within itself. On the contrary, it is open; it is essentially a relation, a "co-ordination," between knowing subject and known object. It is therefore not necessary that consciousness should in some

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way or other appropriate the objects, duplicate them within itself, or represent them. At one stroke there are thus overcome all the difficulties connected with the problem, How does consciousness attain to a knowledge of Being? or, How does Being, which lies eternally external to consciousness, enter the latter? Thus also one need not follow the path of escape adopted by the Kantian criticism. For the essential relation between the knowing subject and the object of knowledge is a primary fact concerning whose possibility no question may be raised. The principal problem of traditional epistemology, namely, how knowledge is possible, is generated simply by a false naturalistic and materialistic conception of consciousness which represents consciousness as residing somewhere in the brain, in the human head, and divorced from Being. But if we guard against confusing the ideal supra-temporal and supra-spacial character of the knowing consciousness as such with the natural conditions of interaction between the external environment and the human nervous system (which should be regarded simply as the external occasion for the knowledge process), then the whole difficulty is recognized as purely imagined.

A somewhat different method of establishing an ontological theory of knowledge is adopted in my work, *The Object of Knowledge: On the Foundations and Limits of Conceptual Knowledge* (1915). This book is devoted to the justification, in principle, of ontologism, i. e., of the primacy of the concept of Being over that of consciousness or knowledge. It is hopeless to attempt to reach a concept of Being if we take our start from consciousness as the only primary point. If we have an idea of Being itself, in its complete transcendence—and without this idea the whole meaning of knowledge collapses—we must have it in a thoroughly primary and immediate form. And we actually

and indubitably do so have it, not only in our own Being, but also, in order that the latter itself may be possible, in Being itself; that is, in the all-embracing unity of Being to which we ourselves belong. That there is anything at all, and that therefore Being itself is, is much more evident than that "I am" or that I have consciousness. To the question of critical philosophy, Is Being external to us or only within us, in our consciousness? we must answer that both are guaranteed at one and the same time by this, that *we ourselves are within Being*. All knowledge, all consciousness, all conception, is really a secondary and derived mode of the appropriation of Being, transferring Being into the ideal form. What is primary, wholly self-evident, is, so to speak, *Being in Being*, the immediate "stepping forth" and self-revelation of Being itself as found in the ontological nature of immediate experience. If the outer world and, in general, the world of objectivity consisted of single isolated fragments, wholly foreign to us, if our own Being were a realm totally self-enclosed and divorced from all else, then we could never be sure that anything really *is*, and not merely appears to us in the moment of knowing. But as every individual object can be thought only within the frame and on the basis of a single all-embracing Being, namely, Being itself—the same Being which also embraces and permeates ourselves—we have in this, in the becoming-aware of Being itself, which precedes every knowledge and is the basis of its meaning, the absolute guarantee for the objectivity and transcendence of our knowledge. Herewith the true meaning of the "ontological proof" (which is quite mistakenly in bad repute) becomes evident, at least in its application to the concept of Being itself. As regards any specific, temporally and spacially defined content of presentation, we may indeed properly ask whether it actually *exists*, or is *only* represented. But



regarding Being itself, this question may not be put. For in this case it loses its meaning. Being itself cannot be "merely represented;" in having it we have it itself in its true reality, and not merely a representation or concept of it. For, every representation and every concept, every existential judgment, even though negative, presupposes Being itself and receives its meaning only in relation thereto.

Somewhat different attempts to overcome Criticism and to open a road to ontology are contained in works by S. Askoldom Alexeyev on *Thought and Reality* (1912) and by Prince Eugene Trubetzkoi (the brother of the previously mentioned Sergius Trubetzkoi) on *Metaphysical Presuppositions of Knowledge* (1917). For an examination of these works, however, space is here lacking.

Both Losski and myself have developed an ontological theory of knowledge, not only in its fundamental principles, but also in its application to the problems of logic (Losski in a separate work, *Logic*, in two volumes, 1922). I must limit myself to the general remark that both authors relate their intuitionism to the immediate intuiting of universal essences, that is, to logical realism or the Platonic doctrine of ideas. Both authors attempt to deal afresh with the principal problems of logic from the view-point of logical realism. In so doing, Losski approaches more nearly to Husserl's phenomenology, with its presupposition of an immediate intuiting of each single essence or ideal, while I, emphasizing the thorough-going unity of Being and the consequent systematic unity of concepts, reach a point of view representing a reformulation and revaluation, in the direction of ontologism, of the Hegelian philosophy and of the logical doctrines of the so-called "Marburg school." The overcoming of idealism is in my opinion equivalent to the overcoming of rationalism: by recognizing that the world of ideas, the system of logical determinations, is a

derived sphere which points beyond itself to the intuitive unity of concrete plenitude, we at once realize that our knowledge is not a self-sufficing cosmos, as idealism maintains, but that it is constituted by its relation to Being itself.

## II. Ontology and Psychology.

For this ontologism, which is characteristic not only of the above-mentioned authors but which may be considered as a typically national trait of Russian philosophical thought, the division of philosophy into the theory of knowledge and ontology is untenable, because all philosophy, and therefore also the theory of knowledge itself, is already ontology. Only in a derived sense may the ontology of knowledge be distinguished from the other parts of ontology, somewhat as we can distinguish in Plato between the ontological theory of ideas as the basis of a theory of knowledge and the theory of ideas employed in the *Timaeus* as the foundation of a cosmology. If we now turn to this ontology in the narrower sense, as it is developed in modern Russian philosophy, we note, in spite of differences in individual conceptions, a general trait of decisive importance, namely, the doctrine of the organic structure of Being. This doctrine, though not yet sufficiently developed in its systematic philosophical aspect, formed the foundation of the whole conception of life even of the "Slavophil" thinkers. On it was based the profound doctrine that the church is a living spiritual organism, advanced by the great theologian Chomyakov; likewise Kireyevski's criticism of the West for its regnant tendency to disintegrate life into atoms, and his ideal of an organic totality in social life. Vladimir Solovyev's whole philosophy is centered in the doctrine of the "all-unity," i. e., of the organic structure of Being, in consequence of which every empirical manifold

depends upon the absolute divine unity which permeates it.

Lopatin's metaphysics, which in general is akin to that of Leibniz, also contains a remarkable doctrine concerning the nature of causality and teleology. It explains both these categorical relations by reference to the supra-temporal unity of Being. In modern Russian philosophy this same general view has been developed in a strict systematic form in Losski's book, *The World as an Organic Whole* (1916). Losski takes as his basis the Platonic doctrine of ideas: the world is dominated by supra-temporal and supra-spacial potencies. Every single being and every substance is penetrated and determined by these general potencies. Losski designates his view "concrete ideal-realism," and he opposes it alike to "abstract idealism" and to "inorganic naturalism" and "substantialism." To the problem of matter, Losski has devoted a special investigation, *Matter in the System of the Organic World-View*. From a different angle I myself have defended almost the same position in the last two parts of my above-mentioned book, *The Object of Knowledge*, as well as in my *Introduction to Philosophy* (1922). I attempt to show by a logical analysis of the concepts of number, time, law and causality, that timeless-ideal and temporal-real being are thinkable only in mutual relation to each other, and therefore in their dependency on the concrete and supra-temporal unity of being which combines timeless rest with living movement. But considerations of space here also compel me to pass over the very important details of the different systematic formulations.

The typically Russian philosophical ontologism has received an especially characteristic expression in Russian psychology. True, we find in Russia an empirical and experimental psychology carried on in the well-known European and American manner. And this psychology has developed rapidly during the past decades. I here pass it

by, however, because it is really a special empirical discipline rather than a part of philosophy. But there is in Russia a purely philosophical psychology of a unique character. It is in evident connection with the non-scientific psychology of the great Russian thinker-poets, Tyuchev, Dostoievski and Tolstoi. I will limit myself to a brief characterization of the general idea of this field of investigation.

In contrast with the so-called empirical psychology which approaches mental phenomena from without, and describes and logically fixes them as part of the empirical objective world, this kind of psychology attempts to describe the psychic life from within, as it appears to the one who experiences it at the moment of the experience. By this the whole ontological meaning of psychic life is changed, or rather the latter only now appears in its true ontological meaning. For if we thus consider psychic life—our dreams, emotions, passions—from within, we see in it not a small and derived part of the empirical-objective reality, but, on the contrary, a universe, a cosmos in itself, which has infinite depths and lives according to laws of its own—laws impossible and meaningless in the empirical outer world, but here obviously dominant. Not only are psychic phenomena spaceless, but, considered from within, purely in themselves, they are also timeless, in the sense that measurable mathematical time, as Bergson also has shown, is not applicable to them. Indeed, with reference to them even the logical laws of identity and contradiction have no immediate application, though, to be sure, they must be heeded by the investigator when he tries to achieve a conceptual fixation of psychical reality. In brief, psychical reality presents us, so to speak, with a wholly different dimension of the universe. Man, as a being in the outer world, appears as a minute part of the universe, and from this external point of view his nature is exhausted in this appearance. In reality, however, what we call "man" is in and for him-

self something infinitely larger and qualitatively wholly different from a small scrap of the world. He is a secret world of enormous, nay, potentially infinite powers compressed within a small compass. And his subterranean depths are as little like his external appearance as the interior of a large, dark cavern containing immeasurable wealth as well as suffering within itself, is like the imperceptible opening which connects it with the bright and familiar world of the surface of the earth.

This general view is maintained in a series of modern works devoted to the philosophical treatment of the problem of the soul. Thus, Leo Lopatin's chief work, *The Positive Tasks of Philosophy* (1884-1886) develops a Leibnizian metaphysics of the soul which, through an analysis of the metaphysical meaning of memory, emphasizes principally the supra-temporal nature of consciousness. In many respects it is in accord with the now well-known doctrines of one who was then quite unknown, the French philosopher, Bergson. Koslov has likewise elaborated a monadological metaphysics of the soul. In the 90's of the nineteenth century Nesselov developed a philosophical anthropology which, though purely theological, was nevertheless also of very great philosophical importance. In his *The Science of Man, naturalism*, in its common form, is refuted with trenchant arguments, and the supernatural character of the human spirit is emphasized in connection with the Christian dogma of the divine nature of man. The same direction is taken in recent literature by the work of the prominent philosopher of religion, N. Berdyayev, *The Meaning of Creation: An Essay in Anthropodicy* (1915). We here have an exposition of the meaning of man as a free co-operator in the divine work of creation. In my book, *The Soul of Man: A Metaphysical Introduction to Psychology* (1917), I have attempted a general metaphysical characterization of the concept of the soul, on the basis

of a phenomenologicistic analysis of the psychic life. In sharp contrast to this tendency, however, is a book by the above-mentioned Alexander Vwedenski: *Psychology Free from All Metaphysics* (1915). This book seeks to revive the associationistic and intellectualistic psychology from the standpoint of Criticism.

### III. History of Philosophy.

The direction taken by research in the history of philosophy is always determined by the level and the direction of the interest in systematic philosophy. In Russia, therefore, the exploration of the older philosophical systems and doctrines has been devoted primarily to the discovery of the true metaphysical meaning of these doctrines. The important investigations of Sergius Trubetzkoï, *Metaphysics in Ancient Greece* (1893) and *History of the Doctrine of the Logos* (1900) have already been mentioned. An outstanding achievement is the two-volume work of the legal philosopher Ivan Ilyin on *The Philosophy of Hegel* (1916). The author emphasizes the mystic-intuitive basis of the Hegelian dialectic and the concrete-metaphysical nature of the "concept" in its Hegelian formulation. B. Vycheslavtzev has written a book on *The Ethics of Fichte* (1914) which also illumines the general metaphysical importance of Fichte's philosophy and its connection with modern German idealism. Vl. Ern has given a most interesting analysis of Italian Platonism in his essays on *Rosmini's Theory of Knowledge* (1914) and *Gioberti's Philosophy* (1916). A profound and path-breaking investigation of the principal concepts of Hindu metaphysics is contained in a book by the late young Indologist, O. Rosenberg, *The Problems of Buddhist Philosophy* (1918).

### IV. The Philosophy of Religion.

Russian philosophy has essentially a religious trend and is determined by religious interests. The most influential

Russian thinker of modern times was Vladimir Solovyev (1852-1900) whose whole life-work, though of almost un-circumscribed universality, was nevertheless devoted to the philosophy of religion. Whatever he did in the fields of epistemology, ontology, ethics, aesthetics, philosophy of history and social philosophy, was determined by his fundamental views in the philosophy of religion: his organic pantheism and his doctrine of the "divine in man," of "the becoming absolute," i. e., of the evolution of human and cosmic life toward the "deification" of all that now exists as mere creature.

It is typical of the Russian philosophical mind in general that it never seeks pure theoretical knowledge alone, but that the exploration of truth is always likewise a search for religious salvation. The most recent Russian philosophy has here again followed the national tradition. From the school of Solovjev have come in recent years several important philosophers of religion. I mention first the theologian Florenski. His important work, *The Pillar and Affirmation of Truth* (1914), is an attempt at a philosophical justification of the Greek orthodox belief. Florenski seeks to prove that human thinking is afflicted with unsolvable antinomies, salvation from which may be found only in the voluntary affirmation of a higher, supra-rational knowledge supplied by belief. In the dogma of the Trinity, which embraces all Being, inclusive of the human mind, is to be found the only adequate representation of this higher living truth. The divine is united with the human and with the cosmic through a special divine principle, "the holy Sophia," or divine wisdom, which forms the kernel of orthodox belief in the sanctity of the church as well as in the Mother of God. Sophia is the feminine receptive element in the concept of God; corresponding to it is that which is divine in the creature, the purity and holiness of humanity and of the cosmos, in its God-receptive status of a bride.

Florenski has influenced the philosopher of religion, S. Bulgakov. In his collection of essays, *The Two Kingdoms* (1913), containing a series of critical studies of modern intellectual currents and of movements in religious philosophy, the latter attempts to show the inconsistency of all forms of unbelief (of socialism, of Feuerbach's deification of man, of Nietzsche's doctrine of the heroic superman), as well as of philosophical idealism, and to present positive Christianity as the only true ethical world-view. Bulgakov's principal work *Daylight* (1915), written in perfect literary style, develops a universal philosophy of religion on the basis of Greek orthodox belief. It advances a justification of the ontological religious consciousness in strong, though somewhat one-sided, opposition to the immanentism of German mysticism and idealism. Central in the exposition is the problem of a "cosmodicy," the search for the religious meaning of the cosmos, of the creature. This is found, in dependence upon Solovyev and Florenski, by disclosing the divine "Sophian" nature of the creature.

To the school of Solovyev belongs also the brother of the above-mentioned Sergius Trubetzkoi, Prince Eugene Trubetzkoi, who died in 1920 during the civil war. In his two-volume work, *Vl. Solovyev's Philosophy* (1913), the latter organizes into a coherent system the ideas which the various works of his master present in only a rather unsystematic form; at the same time he also takes sharp issue with the latter on a number of decisive points.

Nicolai Berdyayev is a distinguished philosopher of religion. Closely attached to the Russian religious tradition, he is nevertheless thoroughly original. His religious anthropodicy was mentioned above; and his works, now translated into German, have received wide acclaim in Germany. Berdyayev has published a whole series of works relating not merely to the philosophy of religion, but also to the philosophy of history, and to social philosophy. The principal



idea which dominates all of them is a combination of positive Christian belief with a peculiar humanism, namely, a belief in the divine task of humanity. To Feuerbach's atheistic deification of man and to Nietzsche's teachings regarding the superman, he seeks to give a positive mystical-religious foundation. God is not absolute, self-sufficient rest. His life is a *mysterium*, a drama, in which creation and man participate. God Himself suffers from the imperfection of the creature. He loves man and invokes his loving help. Revelation is God's call to man, to which man must respond with his free creating activity, with his efforts for the transfiguration and deification of the creature. The history of the world, the creative cultural development of humanity, is this responsive attempt of man to help God, which is of course accompanied by constant mistakes and failures. Of his works I mention only, in addition to the above, *Dostoievski's World-View, The Meaning of History, and The New Middle Ages* (all three of which have been translated into German). At the present time Berdyayev, in connection with the most important Russian philosophers of religion, is editing in Paris a Russian journal of the philosophy of religion, *The Way*.

The philosopher of religion Leo Karsavin is a purely systematic thinker. In his main work, *On Principles* (1925) (the title was selected in definite reminiscence of Origen), he constructs a religious philosophical system on a mystical foundation. The principal thought of this system is the concept of the all-unity. It combines within itself and overcomes theism and pantheism, the transcendence and the immanence of God, and establishes the divinity of man as the integral unity of the thinking human spirit and the divine reality. It is a daring attempt, undertaken with great learning and philosophical profundity, to represent the Greek orthodox belief as a logically coherent and strictly demonstrable philosophical system. Even though it re-

mains doubtful whether such an attempt (which wavers, so to speak, between dogmatic theology and presuppositionless systematic philosophy) can possibly succeed, it is incontestable that the book contains a wealth of profound ideas on the philosophy of religion and is distinguished by an extraordinary rigor and acumen of analytical thought.

In diametrical contrast with this purely logical and systematic movement in the philosophy of religion is the work of another original Russian philosophical writer, Leo Shestov, whose volumes (*Nietzsche and Dostoevski*, *Potestas Clavium*, *The Night of Gethsemane*, and others) have recently also been translated into German and French and have aroused considerable attention. In all of his works, Shestov defends a single idea: the idea that the true, divine basis of life, veritably indispensable to man, is ineffable, absolutely irrational, and capable of being grasped only through a living contact with it in religious experience. He insists upon the falsity of everything that is logically determined and universally valid, in theoretical thinking as well as in ethics. The belief in universal validity—in the "true" and the "good"—which has determined human thinking in philosophy and ethics from the first Greek thinkers, from Thales and Socrates, to Spinoza and, in our day, Husserl, is nothing but the consequence of a spiritual fall, a renunciation of spiritual freedom, a shrinking from a courageous affirmation of the terrifying absolute irrationality and unrepeatable uniqueness of life.

Russian philosophy of religion in general (as well as philosophy as a whole) has never been exclusively a purely academic affair, a task of theoretical investigation; it has always likewise been a religious effort, an expression of the quest for religious salvation. Because of the national collapse caused by atheistic communism, recent years have brought an even more intense consciousness of the need to find the way to a spiritual and national regeneration

through religious reflection and a deepening of the general world-view. Since the publication of books on religion and the philosophy of religion is absolutely impossible in Soviet Russia itself, the effort to meet this need is developing very strongly abroad, where, as mentioned above, most of the Russian philosophers and religious thinkers now live. In Berlin and Paris there have been Russian academies of religious philosophy since 1922. Here lectures on the philosophy of religion are delivered to the Russian youth. The official publication of these academies is the above-mentioned journal, *The Way*, in Paris. Their activity is very closely connected with the Russian Christian student movement, which started in recent years and is developing very rapidly. It is most liberally supported by the American Young Men's Christian Association. To the latter it owes also a Russian press (Y. M. C. A. Press) which has brought out a series of Russian publications on religion and the philosophy of religion, some of which are very important and, though for the most part popular and designed for the general reading public, may claim a purely theoretical interest. Without further comment, I here mention a few of these publications: A collection of essays, *Problems of the Russian Religious Consciousness* (with contributions from Berdyayev, Bulgakov, Losski, Frank, and others); *Dostoievski's World View*, by N. Berdyayev; *The Fall of the Idols and On the Meaning of Life*, by S. Frank; *John and Peter*, by S. Bulgakov; *The Russian Element in Dostoievski*, by B. Vysheslavl'tzev; *The Doctrines of the Church Fathers*, by L. Karsavin.

#### IV. Social Philosophy, Philosophy of History, and Philosophy of Law.

Because of its religious character Russian philosophy is directed toward human life. In it, therefore, "practical philosophy" or ethics (in the wider sense of the term)

inevitably holds a dominating position. The most important and most original contributions made by Russian philosophy in the 19th century (apart from religious philosophy itself) belong to this field. It must be noted, however, that ethics in the narrower sense of the term, as the doctrine of individual human conduct, of values and virtues, is represented but poorly, and indeed only as an exception, in Russian philosophical literature. Hence we may here pass it by. The situation becomes explicable if we bear in mind that Russian thought is not inclined to conceive the "good" as an abstract ideal or as a norm, but, in accordance with its religious nature, always conceives it ontologically, as the divine foundation of Being, as something concrete and existing. Thus ethics is linked up with problems of religious philosophy and ontology. On the other hand, moreover, it thinks of the "good," not individualistically, but invariably as collective, as the principle of salvation of mankind as a whole. In consequence, ethics of necessity becomes social philosophy, philosophy of history, and philosophy of law.

Thus, Russian philosophy, in its most characteristic expression, is always a religiously orientated or determined philosophy of social life. The history of Russian thought in the 19th century consists almost without exception of such religious social philosophy. The great thinkers of the "Slavophil" movement, Ivan Kireyevski and Chomyekov; their opponents, Chaadayev, Herzen, and Eyelinski; the positivists of the '60s and '70s, Chernishevski, Lavzov, Michailovski; the original genius Konstantin Leontyev, who might be called the Russian Nietzsche; and finally also Vladimir Solovyev—all have devoted themselves passionately to "practical philosophy" in the sense of a social philosophy. Everything else in their works serves only as a basis for a most earnest attempt to disclose the meaning of history and of the ideal of a just

and "true" common life of humanity. Socialism, which has played so prominent a part in Russian thought from the '60s of the 19th century to our own days, is in this sense, despite its Western origin, typical of Russian national thought. In Russia, it was almost never taken simply as a political movement, whether partisan or economic in nature; on the contrary, it was always understood as essentially a distinct religious world-view, an expression of an attempt to give life its ultimate meaning. The Bolsheviks also are not so much practical social politicians as fighting atheists, "stormers of heaven," as they once called themselves, who accept as their task the destruction of belief in God and the definite establishment of paradise on earth.

We would pass beyond the limits set for this paper if we undertook a general presentation of the most significant achievements in this very interesting field of Russian thought. We restrict ourselves to a mention of the most important publications of the last fifteen to twenty years. During this period the social philosophy of Russia has been determined primarily by a spiritual crisis leading to a thorough-going philosophical critique of socialism as well as of positivistic or materialistic humanism. The turning-point was the year of the revolution of 1905. Thereafter, Russian philosophical thought in this field began a search for new paths. In 1909 there appeared a collective work under the title, *Road Indicators*, with contributions from Berdyayev, Bulgarov, Struve, Frank, and others. It was devoted to a fundamental critique of revolutionary socialism and of the atheistic social utopia in general. Since then, especially since 1917 to 1918, when socialistic fanaticism became dominant and led to the tragic collapse of the whole Russian national life, several important philosophical works have appeared which combine a critique of socialism with a new and more profound

philosophical foundation of the social-political conception of life. To these publications belong Berdyayev's above-mentioned *The Meaning of History*, which gives a religious philosophy of history; and in addition thereto, especially his *Philosophy of Inequality* (1922), which, in sharp contrast with political views of a socialistic-democratic type, develops the conception of an hierarchical society on the basis of a religious philosophy. We would mention also the important works of the recently deceased legal philosopher, P. Novgorodzev, *The Crisis of the Modern Legal Consciousness* and *The Social Ideal*. With great learning and clear vision Novgorodzev exhibits, in the first of these works, the crisis of the liberal-democratic legal consciousness which now prevails in the European world. The other work is devoted to a critique of the social utopia. The social ideal should not be conceived as an absolutely perfect social condition capable of being realized in its perfection. It is justifiable merely as an ideal, though unattainable, guiding principle in the actual and necessarily relative work of social reform.

The social conception now dominant is criticized from a different angle by the above-mentioned philosopher of religion (who formerly was also a distinguished historian) Leo Karsavin, in his book, *Philosophy of History* (1923). His profound investigations, which are based on an analysis of the concept of the folk-soul, or the historical individuality, as the real subject of historical evolution, culminate in a sharp critique of the dominant concept of progress. History may not be considered as an evolution whose meaning and value can be determined by reference exclusively to its last and highest stage of development. On the contrary, every historical epoch has its own immanent value, as an irreplaceable historical individuality; every age participates in the supra-temporal

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unity of spiritual life and from this it derives its justification.

In my book, *Outlines of a Methodology of the Social Sciences: An Introduction to Social Philosophy* (1922), which sets itself in opposition to every materialistic and naturalistic social philosophy, I have attempted to disclose the spiritual foundations of social life. I find the essence of social life in "subsisting" or "living" ideas, which are indeed realized by human activity but which, as regards their reality, are independent of individual human wills and must be considered as a peculiar over-individual and superhuman sphere of being.

This is not the place to discuss specialized investigations in social science, though they also represent highly important achievements in general social philosophy. I mention only briefly in this connection a work by the well-known Russian statesman and national economist, Peter Struve: *Economics and Price*, which presents a profound critique of socialism from the standpoint of a philosophy of economics; also B. Kistyakovski's *Social Science and Law* (1916), which emphasizes the reality of objective law and gives a critique of psychologism in legal science; and A. Chuproff's *Outlines of a Theory of Statistics* (1912), which contains discussions, of great importance also to philosophy, of the problems of the universal and the individual in social life, and of "determinism and freedom of the will."

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## THE PHILOSOPHY OF RELIGION IN FRENCH-SPEAKING COUNTRIES FROM 1914 TO 1925<sup>1</sup>

THE title of this article must not be allowed to mislead the foreign reader. The very expression "philosophy of religion" is undoubtedly employed less in France than it is in Germany or in the English-speaking countries. In any case it does not among us designate a definite and unique discipline. In using it here we are attempting simply to envisage together the recent studies which lead either to an interpretation of religious phenomena as a whole or of one of their essential forms, or to a reasoned solution of the problem which they contain. Thus our field will include, for example, the psychology of religion as well as rational theology.

### I.

Let us recall first of all the status of these studies in France before 1914. The dialectic method no doubt continued to have its adherents as much among the scholastic thinkers as among the idealists more or less devoted to the Hegelian tradition. For a long time, however, it had not led to any work of the first rank. The most remarkable philosophical effort aroused by the religious problem during the quarter-century preceding the war seems to be that which, in the mind of a frankly Catholic thinker, took the form of a *philosophy of action*. We cannot review in brief lines the profound and elaborate system which M. Maurice

<sup>1</sup> Translated from the French by Edward L. Schaub. [This paper supplements the articles published in *The Monist* for July, 1926, on recent philosophical activities in French-speaking countries. The collection as a whole affords a remarkably lucid and comprehensive survey of this important sector of philosophical thought. Ed.]



Blondel has set forth under this name in his celebrated essay of 1893 and in several succeeding articles. Let us simply say that it appears to us as an original reconstruction of the thought which dominates the apologetics of Pascal. All the philosophical problems are marshalled about a central consideration: that of the essential aspirations of our will. Tracing the active manifestations of these aspirations, and pointing out how they survive inevitable disappointments, the author seeks to establish that our will transcends the phenomenal order, that it manifests the immanence in us of a transcendent deity; if, moreover, it is to remain at the crest of its original impulse, it must keep itself open to the action of this deity.

An entirely analogous conception has been presented by Father Laberthonnière in a form much less technical, very personal, and very penetrating, under the designation of *moral dogmatism*. Finally, in connection with one aspect of this tendency, one might cite the brilliant and courageous efforts of M. Edouard Le Roy to put into new terms the problems of dogma, of miracle, and of God. For here also it is from a deeper experience of the spiritual life, interpreted in a sense antithetical to intellectualism, that religious philosophy borrows its light, though it should be added that the thought of Bergson, whose influence is predominant in the case of M. Le Roy, perhaps presents not less of difference from than of similarity to the doctrine of Blondel.

As for the effort to treat religious phenomena in their ensemble as a strictly *positive* investigation, it took form in our country only within relatively recent times. It suffices to read the chapter devoted by Ribot, in his *Psychologie des Sentiments* (1896), to the religious sentiment, to see how little advanced the analysis of this state of consciousness was at that time. Since then the psychology of religious phenomena has made great progress. In particu-

lar, let us refer here, next to the small work by Murisier, to the works of M. Henri Delacroix. In his remarkable *Etudes d'Histoire et de Psychologie du Mysticisme* (1908), Delacroix, through a minute study of three great historic personalities, presented a peculiarly profound analysis of Christian mysticism, whose complex and progressive development he brought into clear relief.

Finally, sociology, in its turn, has attempted to annex to itself the study of religious facts. It will be sufficient here to call attention to the works of M. M. Hubert and Mauss, and especially to the authoritative treatise of Durkheim on *Les formes élémentaires de la vie religieuse* (1912). On the basis of a study of a particular set of facts, namely Australian totemism, Durkheim presents religion in its totality as a product of the collective life, as transposing into a form that is imaginative but not wholly unreal the most fundamental features of this life. If this bold thesis is far from having been demonstrated by Durkheim's work, it has at least never before been set forth in a manner at once so precise, so broad and so vigorous.

Such, in the period preceding the war, were the most notable productions of French thought in its grapple with the religious problem. What new efforts have been made subsequently to 1914 to penetrate further into this domain? It is this which we here endeavor to set forth.

## II.

The dialectical method has not yet been abandoned by all. Under the traditional form of Thomism, it is represented by Father Jarrigou-Lagrange, though, to be sure, he has not, during the period under present consideration, given us any new philosophical works but only new editions of former publications. In the most important of these<sup>2</sup> he makes a strenuous effort to demonstrate the ex-

<sup>2</sup> *Dieu, son existence et sa nature. Solution thomiste des Antinomies agnostiques.* Paris, Beauchesne, 3rd ed., 1920. Cf. by the same author, *Le sens commun, la philosophie de l'être et les formules dogmatiques.* Paris, Nouvelle Librairie Nationale, 3rd ed., 1922. (The first edition appeared in 1909.)

istence of God by the principle of causality, which of itself carries back to the principle of identity in such a way that we are compelled to choose between the affirmation of God and the acceptance of an absurdity. This type of argument appears feeble to most contemporary thinkers. Nevertheless it is necessary to point out that in certain quarters Thomism is again in vogue and that it counts enthusiastic followers, of whom the most ardent is M. Jacques Maritain.<sup>3</sup>

As concerns the dialectic of idealism, one may find a particularly significant example in the lectures by Jules Lagneau, *De l'existence de Dieu*,<sup>4</sup> recently published through the devotion of one of his followers. Nowhere may we find the reflective method utilized with greater sincerity or depth. The fundamental concern of the author, strictly speaking, is not to prove the existence of God, for existence is exclusively a character of sensible things, but to penetrate to the reality of God as a principle immanent in the exercise of our own thought. Lagneau seeks to establish that the principle of all reality, transcending sense existence and even intelligible necessity, really resides in an "absolute act" of freedom, an act by which God eternally posits himself and *ipso facto* posits the essential identity of the ideal and the real. We need not follow the author in the windings of the ingenious dialectic by which he connects with this central principle the fundamental aspects of being. Let us simply note that according to him it is especially in the moral act that the fundamental character of reality reveals itself. For inasmuch as the thinking being in this act sacrifices the individual to the universal, he

<sup>3</sup> See in particular the *Réflexions sur l'Intelligence*, Nouvelle Librairie Nationale, 1924.

<sup>4</sup> Paris, Alcan, 1925. The neo-Scholastic movement has produced the book of Baron Decamps, *Le génie des Religions, les origines*, Brussels, A. Dewitt, and Paris, Alcan, 1923. But this comprehensive synthesis which takes cognizance of everything from epistemology to prehistoric facts touches everything very superficially.

attains in it the most complete certainty of the reality of God. This line of argument, which at the outset seems to carry abstraction to its culmination, itself terminates in the conclusion that the true solution of the metaphysical problem lies in action. Lagneau invokes as his masters especially Plato and Spinoza. Yet in sum, we have here a version, very pure, very personal and especially closely-knit, of that absolute idealism of an ethical cast which sprang from Kant and from Fichte, and which a Royce, for example, developed in a richer and more concrete form in America. We would not forget, moreover, that Lagneau was almost a contemporary of Royce; the book *De l'Existence de Dieu* reproduced lectures delivered in 1892-1893. In fact, it seems to bear the stamp of that date. For even though the taste for dialectics has of late reappeared among certain authors, it is doubtful whether this way of treating the religious problem is such as can today satisfy many minds. Yet the ideas put forth by Lagneau are far from being dead. On the one hand, his insistence on the metaphysical import of action has its equivalent in the thought of M. Blondel, though, to be sure, with very wide differences in method as well as in application. And, furthermore, the idealistic conception of a deity completely immanent in mind still seems to be more or less implicitly adopted by a number of our contemporaries. It is to be found, for example, in the thought of a Brunschvicg<sup>5</sup> whose impersonal spiritualism is so resolutely hostile to all attempts at an individualization of God. Nor is the conception foreign to the mind of a former student and ardent admirer of Lagneau, divergent as are the two in style: the pithy essayist who signs himself Alain and whose name is Chartier.

The last-named writer has attempted a concrete inter-

<sup>5</sup> See in particular the last study contained in the small collection entitled *Nature et Liberté*, Paris, E. Flammarion, 1921.

pretation of religious facts in his "*pièces mal cousues*," brought together under the title *Propos sur le Christianisme*.<sup>6</sup> Nothing could be more impossible to summarize than this small book. Its every bit, indeed every sentence, stimulates thought with a new goad. We can only point out some of its leading tendencies. Alain places religion, and particularly Christianity, in the nexus of the history of the human spirit and he explains the latter by the continuous action of two really different factors: the play of the emotions and the effort of thought. On the one hand, he insists on the naturalistic, so to speak the corporeal, origin of religions. Seasonal festivals, dances, ceremonies, and also idols, temples, monuments—these are bodily manifestations that give rise to cult prior to legend. But to these manifestations reflection soon applies itself. Hence the pagan myths already express the idea of a universal order. In these ancient theologies, one may discern the first operation of reason. Catholicism marked a still more decisive advance in its idea of a single spiritual deity, in its teaching of human brotherhood, and in the importance which it attached to faith. Alain is concerned to show what elements of truth may be found at the basis of these dogmas, including that of the Trinity. But in so doing, he boldly transposes them. For him, as for Hegel, to comprehend a thing is already to have passed beyond it. The idea of universal spirit, advanced by the Church, now exists outside of the Church. On the one hand, it is corroborated by science, which realizes the accord of all and alone permits us to discover that which is; on the other hand, it always requires faith, but a faith freed from beliefs, reduced to its true nature, relating to "that which will come through volition"—a faith, moreover, exclusively human. Alain praises Epicurus for having denied the existence of any will hidden at the heart of the universe; and he does not sever himself

<sup>6</sup> Paris, F. Rieder, 1924.

from the materialists on this point. He writes frankly: "We may adore naught but man."

In brief, the successors of Lagneau have accentuated, if not narrowed down, the somewhat vague thoughts of their master in the direction of intellectualism and of an exclusive *humanism*. Would we now have an example of a book comparable to that of Alain in that, though truly philosophical in thought, it is addressed to the wider public,—a book, however, that is animated by an entirely different spirit and leads to opposite conclusions? In such event, we could doubtless not do better than to select the *l'Inquiétude Humaine*<sup>7</sup> in which Father Pierre Sanson, priest of the Oratory, has published lectures which he gave in Notre Dame in Paris before immense audiences. His theme is taken from Pascal. He treats it after the spirit of M. Blondel or, still more, of Father Laberthonnière, not without the moving sincerity and the apostolic ardor that characterize this new great orator. He insists on the fact of universal human restlessness. He finds the cause of this in the contrast that exists between our radical frailty and our longing for the infinite, between our fundamental dependence and our need of entire freedom, between that which we are and that which we wish to be. He thus sets forth in its fullness the problem of our destiny and then strives to establish first of all that we cannot avoid it by refusing to face it, as is the case with all manner of skeptics. He finds also that no satisfactory solution is possible outside religious belief. He seeks to show the inadequacy at this point of all terrestrial social organizations, of science and even of philosophy. This latter analysis is particularly significant. Taking the monism of Spinoza and the pluralism of Renouvier as representing the two fundamental philosophical attitudes, Father Sanson criticizes them, each in turn, for their inability to bring us genuine

<sup>7</sup> Paris, "Editions spes," 1925.

liberation. According to him, we can gain the infinite to which we aspire only by preparing ourselves to receive it, only by performing an inner act of religious faith which he describes in terms brief but penetrating.

There being a dearth of French defenders of radical pluralism, we may say that, with the exception of the Thomistic renaissance described above, this supernaturalism, which is based on deep searchings into human restlessness, and the monistic idealism based on the requirements of thought and defended in very different ways by a Brunschvicg and a Chartier, represent the most vital forms of religious philosophy in French-speaking countries. It is still especially Pascal and Spinoza who are brought face to face in the most modern thought—the one in a form exhibiting the influence of romantic lyricism and of the experience of spiritual leaders; the other more or less transposed into the language of Kantian idealism and of the religion of humanity. Let us now leave these regions of almost pure philosophy to see what other contemporary thinkers have derived from an empirical study of religious facts.

### III.

Religious sociology, strictly speaking, seems to have given birth in this recent period to only a very few works, at any rate to such as are synthetic in character. We may mention the work of M. Czarnowski.<sup>8</sup> Studying the legend of St. Patrick, this writer has presented it as a product of the Christian churches of Ireland, creating through this epic a finer picture of their social life. Then, by means of this example, M. Czarnowski has tried to establish a connection between the cult of heroes and certain types of social structure. We may also mention the preface, in which M. Hubert has refined the solution offered by the author of this monograph, whose bent is sociological.

<sup>8</sup> *Le Culte des Héros et ses Conditions sociales. Saint Patrick héros national de l'Irlande*, Alcan, 1919.

Much more important, doubtless, would have been the study undertaken by Robert Hertz on *le Pêché et l'Expiation dans les Sociétés inférieures*. But this richly endowed young sociologist was killed in the war before having finished the work in which he sought to elucidate these fundamental notions of the religious life by studying them especially as they occur in Polynesian groups. Only the remarkable introduction has been published.<sup>9</sup> Hertz here vigorously brought out the obscurity of the Christian notions of sin and of expiation and the necessity of turning to ethnology for a clarification of their genesis. But M. Mauss has been able to utilize the abundant and methodical notes which Hertz left and has himself prepared, conformably to the thought of his friend, a book whose early publication he has announced.<sup>10</sup> Finally, let us add that the interpreters of religious facts must henceforth take into account the already classic work of M. Levy-Bruhl on *La Mentalité Primitive*.<sup>11</sup> The author has extensively set forth the "essentially mystic" character of primitive thought, showing that it conceives all sense phenomena as manifestations of occult forces with which they continue, for primitive thought, to be inextricably interwoven.

With the strictly sociological works we may connect those of certain historians. In his ingenious little work *Le mystère de Jésus*<sup>12</sup> M. P. L. Couchoud, seizing with a rare talent upon the thesis of the mythologists, contends that Jesus ought not to be regarded as an historic personage but as a product of the collective mind, as a being gradually evolved by the Christian consciousness, as the result of a "collective mystic experience." Again, in his excellent work on *Les rois thaumaturges*,<sup>13</sup> M. Marc Block, bring-

<sup>9</sup> *Revue de l'Histoire des Religions*, Jul.-Oct., 1922, pp. 5-54.

<sup>10</sup> *Année Sociologique*, Nouvelle Série, Vol. I, No. 1, 1925, p. 2.

<sup>11</sup> Paris, Alcan, 1922. We know that this work constitutes a sequel to the book on *Les fonctions mentales dans les sociétés inférieures*, *Ibid.*, 1910.

<sup>12</sup> Paris, Rieder, 1924.

<sup>13</sup> *Publications de la Faculté des Lettres de l'Université de Strasbourg*, No. 19, Strasbourg and Paris, Istra, 1924.



ing a more accurate method to bear on a less elusive subject, studies the belief according to which the English and French kings enjoyed miraculous healing powers. Among the causes that have produced and maintained this belief he makes room for both collective representations and the action of certain individual will-forces, thus purposely combining the sociological explanation with what may be termed the Voltairian interpretation. We should mention above all the works of M. Alfred Loisy, especially a work such as *l'Essai historique sur le Sacrifice*<sup>14</sup> which subordinates a wealth of information to a vigorous synthesis and exhibits a strong sociological interest. But since it is impossible here to devote to this work the consideration which it merits, we would do well to dwell on the book in which this illustrious exegete has set forth the ensemble of his ideas on religion.<sup>15</sup>

In this work, at once very simple, very personal and devoid of all references, M. Loisy aims to disengage the "human aspect" of religion observable alike in religion and in contemporary society. However profound may be his sentiment of universal evolution and of the transiency of all dogmas, he nevertheless believes that religion has a kind of permanent essence. What one finds as the principle of all religions is, according to him, the sense of human solidarity, the sentiment of our duty toward humanity. Such a sentiment was confusedly present even in primitive religion but it was here fused with the belief in doubles; in the course of history it became progressively clarified, and in our day it is emancipated from all metaphysical theory. But M. Loisy insists no less on the "mystic" character which this sentiment preserves and will ever preserve; by this term, deviated from its specific meaning, he designates

<sup>14</sup> Paris, Emile Nourry, 1920.

<sup>15</sup> *La Religion*, Paris, Emile Nourry, 1917; 2nd ed. with preface considerably revised and enlarged, 1924. We may find other small works on related subjects mentioned on the cover of this book.

a disposition of our being irreducible to reason. Faith has always been the primordial factor of religious evolution; and at bottom it is a sentiment of confidence in the future of the group. At present, Christian beliefs are being dissolved through a fatal crisis arising from the whole of social evolution. What should succeed them is not the reign of reason but a new faith, faith in humanity extolled by M. Loisy in moving terms as "the eternally true Christ, ever suffering, ever dying, ever resurrected" (p. 367).

It is clear that M. Loisy stands rather apart, as he is equally hostile to supernaturalism and to rationalism. In certain respects his position obviously approaches that of Durkheim. Both scholars agree in regarding human society as at once the origin and the true object of religion; both alike endeavor, while eliminating every trace of the transcendent, to extract from the religions of the past a degree of permanent truth. But differences appear through these agreements. M. Loisy is at once more idealistic and more anti-intellectualistic than Durkheim. He avoids, as it would seem, the equivocation inherent in the purely sociological theory of religion; the legitimate object of our worship is for him not the actual society but ideal humanity (p. 371). He has too pure and too profound a sentiment for the moral life to reduce it to the simple pressure of the collective consciousness. Perhaps one might even characterize his theory of religion as the most radical *moralism* which has ever existed. The sentiment of duty which he makes the common essence of morality and religion is conceived by him with no less austerity than it was by Kant. But he isolates it from all considerations both of metaphysics and of rationality. For him it has the nature of a spiritual instinct which impels the individual to devote himself to the service of humanity without hope of personal reward. The nobility of this conception is incontestable, as is also its accord with certain tendencies of modern thought.

But is the interpretation faithful to the facts of religion? It must be admitted that M. Loisy exhibits far less concern than Durkheim to advance proofs. His book, *La Religion*, represents a spirited profession of faith, incorporating apt historical syntheses. But it fails to establish that the faith of the author is identical with the essence of positive religions or even that it may properly be called religion.

A fact which curiously confirms this criticism is that another historian has recently advanced a conception of life very similar to that of M. Loisy but has presented it as *opposed* to the religious conception. In his book, *La Religion et la Vie de l'Esprit*,<sup>10</sup> M. Paul Ultramare of Geneva, the erudite student of Indian civilization, explicitly puts this capital question: Is religion an indispensable aspect of spiritual life? When all is said and done, his answer is frankly in the negative. What he also defends is a purely human ethics; at the same time he pays a stricter regard than M. Loisy to the unique character of religion. He defines the latter as "the totality of beliefs and practices by which man expresses sentiments of reverence, of desire or of fear towards objects or beings which, though going beyond his sensible experience, he has invested with a capacity of beneficent or malevolent action" (p. 196-7). For him religion always implies belief in the reality of the transcendent. He seeks, moreover, to establish his thesis by an argument that is rather complex. He considers in turn the social and the individual aspects of religion, emphasizing the importance of the latter. He dwells alternately on the services which religion is capable of rendering to the spiritual life and on the injuries which it can cause. He insists on its exclusively human origin and holds that "religious experiences" reveal no other reality than the soul of the believer. He endeavors to show that, though religion has often been beneficent, it is sometimes also harm-

<sup>10</sup> Paris, Alcan, 1925.

ful and is never indispensable; it brings to man no good which he cannot obtain by other means, often to better advantage. It was the first moulding influence of the spiritual life, but we may now leave it behind and seek our ideal in the present life. . . . One sees how clear is this thesis of M. Oltramare and how diametrically opposed to that of Father Sanson. But perhaps he has set forth in a somewhat cursive manner the chief arguments on which one may lean rather than established any of them by an analysis sufficiently profound to carry conviction.

#### IV.

It remains for us to consider the works of religious psychology. Such have not been lacking during recent years.

The most significant of the comprehensive works that have appeared in this domain during this period is doubtless *La Religion et la Foi*<sup>17</sup> by M. Henri Delacroix. We have here a methodical and detailed inventory of the principal forms of faith and connected experiences, considered in both their structure and their evolution. The work is remarkable especially for the abundance of the assembled facts, for the analyses of mental states, and for the interpretations proposed in passing. History and psychology are often brought into reinforcement, mutually enriching each other in a very happy manner. The author exhibits a live consciousness of the complexity of the phenomena which he studies, an obvious repugnance towards one-sided explanations, a constant concern for objectivity. His work, moreover, no less truly manifests a genuine singleness of spirit. At the very outset he distinguishes three principal types of faith: implicit or authoritative faith, trusting faith, and reasoning faith. This distinction corresponds to three factors which are consistently held throughout the entire

<sup>17</sup> Alcan, 1922.

volume to be at work in the religious life, the intent being not to sacrifice any of them: institution, sentiment and reason. Delacroix opposes with particular vigor explanations in terms purely of sentiment. No less truly at the basis of religion, he contends, is human desire, which creates belief in the realization of its object, and subconscious emotion, individual or collective, which confers upon this object an appearance of transcendence. To these affective states, however, one who strives for completeness must add an act of thought, belief in a certain objective order of forces or of causes. Moreover, desires and beliefs immediately give rise to a system of ritual; here lies the mainspring of cult, which preserves a degree of importance even in the most profound forms of faith. From the rite itself there is more and more completely disengaged, in the course of history, the myth, and then the dogma. Here again there intervenes an act of thought which, from the primitive notion of an impersonal and diffused religious force, presses forward to deities ever more individualized and finally re-absorbes them into the anonymity of divine infinitude. Similarly, if upon living faith there supervene dogmatic formulae, it is in consequence of the need that this faith experiences to know its own character and be founded on truth. There then comes a complex speculative development in which dogma presents itself as explanation before becoming mystery, and in which the authority of the Church finally intervenes to consecrate a protective synthesis.

We thus have a glimpse of the complex interrelations in which M. Delacroix envisages the diverse elements of faith. At the conclusion of all these analyses, so rich and so delicately demarcated, some minds cannot but put to themselves this question: What do they teach us with respect to the value of religious faith? M. Delacroix does not explicitly

touch upon this problem. Obviously, however, he seeks to present religion in its totality as a product purely of "creative faith," explicable by the general laws of the human mind and doubtless incorporating much of illusion. Moreover, however much he insists on the intellectual labor that religious faith often includes, he tends to make an absolute distinction between this faith and reason. "The faith which reason has in itself," he writes, "is not faith but reason" (p. XII). Here is an assertion singularly trenchant but in its brevity somewhat enigmatic. But this is just the kind of thesis that the author is least concerned to justify. He seeks to hold himself as closely as possible to the psychological point of view. But would not his psychology itself really have received a greater precision and confirmation if he had clearly put the epistemological problem and the metaphysical problem to which it inevitably leads, even if he did not solve them?

The same type of question will arise even more forcibly if we turn to that field of religious psychology which has been cultivated more intensively than any other in recent years: the study of mystic experience. Let us consider, first of all, the authors who, like M. Delacroix, believe themselves able to hold to an exclusively psychological point of view. *La psychologie des Mystiques catholiques orthodoxes*<sup>18</sup> by M. Maxime de Montmorand at once comes to mind. In this interesting and richly documented work, the distinctive traits of a particular group of mystics, their ascetic method, their mystic "phenomena" and "states" are described and classified in a manner both precise and clear. But the interpretation of the facts remains somewhat too brief. M. de Montmorand undertakes to discuss especially the explanations advanced by other psychologists, and to

<sup>18</sup> Alcan, 1920. Let us mention also the second edition of the book of M. J. Segond on *La Prière* (Alcan, 1925), an edition which differs from the thesis of 1911 only in a new arrangement of certain chapters and in numerous omissions.

exhibit the inadequacy of purely pathological theories. He himself connects mystic "phenomena" with the psychological state of *inspiration* without much explanation of the denotation of this latter term. As for mystical ecstasy, he insists that it affords something original but admits that it tends toward unconsciousness, and refuses, from the psychological point of view, to find in it a higher form of knowledge. In brief, M. de Montmorand has presented a convenient survey opening up the study of mysticism rather than a profound analysis of the experience.

A few attempts have been made, not in France but in Switzerland, to interpret mysticism in the light of psychoanalysis, following the example of Silberer. Flournoy has advanced an interpretation of this sort in the case of a curious "modern mystic" whom he has studied minutely with the aid of her own personal confessions.<sup>19</sup> But the theory remains a mere outline and its application limited to the interpretation of a single case—and one altogether remarkable—whose patient and penetrating analysis constitutes the entire interest of this study. A much more systematic and comprehensive extension of the concepts dear to psychoanalysts to the interpretation of mysticism has been presented by M. Ferdinand Morel in his *Essai sur l'Introversion mystique*.<sup>20</sup> Taking as his point of departure a study of the writings of Pseudo-Denys the Areopagite, he believes himself able to demonstrate that the central phenomenon among the great mystics is the attitude that Jung has called *introversion*; that is, the condition in which consciousness is detached from external reality and turned back upon its own functioning. This full introversion, to be found among the Indian, Alexandrian and

<sup>19</sup> *Une mystique moderne (Documents pour la psychologie religieuse)*, in the *Archives de Psychologie*, Vol. XV (1915), pp. 1-224. See also *Ibid.*, pp. 338-353. We find here some interesting remarks by M. Delacroix concerning this case which he compares to those of the great mystics of history.

<sup>20</sup> Thesis presented to the University of Geneva, Kündig, 1918.

"speculative" mystics, itself results from a fundamental *narcissism*. Among female mystics, on the other hand, auto-eroticism predominates. Finally, the mystics called "orthodox" represent an intermediate type. At the basis of the two extreme types one may find a common element, namely, a sexual mal-adaptation resulting in a shift of attention toward the unconscious pole of the mental life. We have here, it is obvious, an unusual conception of the mystic experience. But one must confess that the interpretation seems both too arbitrary and too superficial. To us it appears probable that psycho-analysis can throw some light on this obscure region, but only on condition that it operate with the aid of less rudimentary concepts. In their excessive brevity the interpretations of Flournoy embodied the promise of an explanation more richly shaded.

Of the theories advanced from a purely psychological point of view, the most complete apparently continues to be that of M. Delacroix. In his *Etudes* of 1908, he described the stages of mystic development as subject to laws representing internal determinism, in part subconscious, tending, moreover, to a progressive enrichment of the personality. It is by this hypothesis of the subconscious, borrowed from William James, that he explained in particular the feeling of passivity common to mystics. At the same time, however, he insisted on the control exercised by intelligence over their experience. In his more recent publications<sup>21</sup> he has presented a new analysis of the mystic ecstasy in its totality. He represents it as consisting fundamentally of "a confused exaltation illumined by a spiritual interpretation." At its basis there is thought to be a sort of indeterminate effusion of love closely kin to that which gives birth to lyrics or to music, but in the case of the mystic

<sup>21</sup> See *La Religion et la Foi*, Vol. II, chap. 1; the article mentioned in the *Archives de Psychologie*; and finally, the remarks concerning the thesis of M. Baruzi, *Bulletin de la Société française de Philosophie*, May-June, 1925, pp. 33-42.



there is also a metaphysical schema resulting from speculations on the infinite and ineffable deity. Thus the mystic experience appears to the eyes of a psychologist not as a simple intuition but as a very complex synthesis of intellectual and affective motifs governed by an effort on the part of the individual to identify himself with the principle of the universe. Psychology thus shows "the profoundly human character" of the mystic experience without, however, being able to decide on its ontological value.

Recently another investigator has sought, with the aid of a peculiarly privileged subject, to clarify not only the psychological nature but, as he calls it, the "noetic value" of the mystic experience. M. Jean Baruzi has consecrated to this purpose a voluminous, learned and penetrating study of St. Jean de la Croix.<sup>22</sup> One may not praise too highly the wealth of his information and the pithiness of his analyses. As to the conclusion which he endeavors to derive, this does not always stand out with perfect clarity. But the following is what seems to us to be essential in it. Through the depth of his mystic experience, St. Jean de la Croix, realizing in himself the universal and permanent conditions of union with the divine, was led to a true intuition of a metaphysical import, namely that of the absorption of the soul into a deity without modes. Thus he implicitly went beyond not only the scholastic psychology which he had received from tradition without changing it, but even beyond Christianity; he has led without realizing it into a form of "intellectualistic idealism" in the manner of M. Brunschvicg. . . . We here have, as may be seen, one of the most engaging efforts to free the intuition of a mystical genius from the inadequate interpretation which it had given of itself under the dominance of the traditional

<sup>22</sup> *St. Jean de la Croix et le problème de l'expérience mystique*, Alcan, 1924-5. Also the communication of M. Baruzi to the Société française de Philosophie, *St. Jean de la Croix et le problème de la valeur noétique de l'expérience mystique* (Bulletin cited in the preceding note).

categories,<sup>23</sup> and the thesis, though based on the analysis of a single case, nevertheless contains a thought of universal bearing. M. Baruzi holds that the mystic experience possesses an irreducible originality, that it yields real "insights" independent of the religious form to which it may be bound solely by an accident of history, that it reveals a new relation between the spirit and things. We have here a thesis strikingly original but which still awaits—M. Baruzi himself recognizes this—its complete demonstration. What seems a bit disappointing in the work already accomplished is the fact that from the experience of St. Jean, described at such length, one retains a noetic residue so slight and so little different from that which others have obtained by means of a completely abstract dialectic.

There are other authors who have expressly shown that if one would penetrate to the bottom of the mystic experience, one must examine it in connection with the general conditions of human knowledge. This demonstration has been undertaken in two rather different ways by Father Joseph Maréchal and by M. Maurice Blondel. The former, in his very interesting *Etudes sur la Psychologie des Mystiques*,<sup>24</sup> sets forth with much accuracy the complex conditions that come into play in the interpretation of mystic states. He disengages the principal types of ex-

<sup>23</sup> It goes without saying that this interpretation of St. Jean de la Croix has been challenged. See in particular the profound discussion of Father Laberthonnière (*Bulletin* cited above, pp. 43-75). According to him the spiritual life of St. Jean de la Croix surpasses and sometimes contradicts his scholastic language, but not true Christian tradition; he conceives the mystic ecstasy not as an absorption of the soul into a universal substance, but as the union of two beings based upon the reciprocal giving of self prepared for by the practice of generosity. See also for a closely related article that of M. Joannès Wehrlé, *La vie et la doctrine de St. Jean de la Croix (Cahiers de la Nouvelle Journée, No. 3, Qu'est-ce que le Mystique?* Paris, Bloud et Gay, 1925, pp. 124-169). M. Wehrlé sees in the doctrine of St. Jean both a development of evangelical thought and a sketch of the philosophy of action. For an article in the more traditional sense, see the critique of M. Baruzi's book by the monk of Solesmes, Ph. Chevallier, *La Vie Spirituelle*, 1925, XII, pp. 188-212.

<sup>24</sup> Vol. I, Bruges, Ch. Beyaert, and Paris, Alcan, 1924. This volume contains articles published in 1908-9 and 1912.

planatory hypotheses, recognizing that the strictly empirical theory carries a "presumption of authority" based on the methodological principle of the economy of thought, but he himself inclines to the doctrine according to which mystical ecstasy affords a true intuition of being, due to the action of God wherein he reveals himself to certain souls. To the support of this thesis he adduces the testimony of the mystics themselves, the conclusions which he believes to be established by metaphysics, but especially the general psychology of human intelligence. That which, according to him, characterizes this intelligence in all its activities is the need of affirming being and of achieving unity. In the realm of natural knowledge, namely that of sense perception and of multiplicity, this need cannot be completely satisfied. Our spirit can realize its deep aspiration only if, thanks to the intervention of an external power, it attains to an intellectual intuition of being. Such precisely is mystical ecstasy; though surpassing the powers of mere intelligence, it is merely a projection of the essential movement characteristic of the latter.

This conception of mental dynamism represents a loan from the Thomistic psychology, in which one discerns an echo of Plotinus and even of Plato. In the present case, however, it is weakened by the idea that human knowledge is naturally imprisoned within the circle of the sensible. M. Blondel has based a rather similar glorification of mystic union on a theory of knowledge much more complex and original. In his remarkable contribution to the volume, *Le procès de l'Intelligence*,<sup>25</sup> he has advanced the important thesis that our intelligence, over and above *notional knowl-*

<sup>25</sup> *Le Procès de l'Intelligence*, by P. Archambault, M. Brillant, P. Gemahling, L. Ruy and M. Blondel, Paris, Bloud et Gay, 1922. These studies had previously appeared in articles in the *Nouvelle Journée*. M. Blondel here names St. Augustine, Pascal and Newman as the principal upholders of the conception which he develops. In another work he points out also a more precisely worked out expression of this in the work of his master Ollé-Laprune: See *Ollé-Laprune, L'achèvement et l'avenir de son oeuvre*, Bloud et Gay, 1923.

edge, is able to form and to develop what he calls *real knowledge* or *knowledge by connaturality*. This latter form of concrete thought which tends to the possession of being in its character of a totality comprising particularity and wholeness, rests on a natural *affinity* which causes us to vibrate in unison with others and is developed by a spiritual culture which progressively frees us from egoism and actively harmonizes us with other beings. This knowledge, requiring for its exercise the co-operation of all our powers of action and feeling, and likewise possessing a rational and objective character, represents, according to M. Blondel, the point where mysticism inserts itself into human life. This is the doctrine defended in a very complicated but substantial study, *Le problème de la Mystique*.<sup>26</sup> Real knowledge puts us into communion with integral reality, but in a manner always imperfect. It tends to unite us to the principle of being, but by itself alone cannot consummate this union, for God is not an object who may thus be laid hold upon. Mysticism yields the only truly satisfactory reply to the question that reason puts but cannot answer. Human knowledge in all its forms ultimately leaves a void; the contemplative union enjoyed by the mystic alone yields true satisfaction. Though irreducible, and different from the ordinary experiences of life, this state is nevertheless in continuity with the latter, "being a direct prolongation of the line pursued by our knowledge and our action" (p. 454). It involves a divine grace that is incommensurable with human achievements and that may nevertheless, even in its most exalted forms, to a certain extent be apprehended by reason. It is the complete realization of the human ideal, and even, in a strict sense, of the philosophical ideal. It is "the perfection of the spirit" (p. 62). This is an important contention, of whose justification, how-

<sup>26</sup> In the *Cahier* already cited: *Qu'est-ce que la Mystique?* pp. 1-63.

ever, M. Blondel has up to the present attempted only a sketch.

Thus the psychology of religious phenomena in their profounder phases leads to conclusions no less divergent than those of the purely philosophical study of religion. Nevertheless the former offers at least the advantage of turning our thought towards facts, doubtless difficult to grasp, yet rich in substance. Another aspect of the subject—and one too long neglected—has been explored in an interesting way by two Protestant authors. I refer to the religious sentiments of childhood. M. Henri Clavier, utilizing numerous and exact observations, has written on *l'Idée de Dieu chez l'Enfant*.<sup>27</sup> M. Pierre Bovet, in his little work *le sentiment religieux et la Psychologie de l'enfant*<sup>28</sup> has presented a completely individual analysis of the same subject. He seeks to show that the "adoration" manifested by the small child toward his parents is "the prototype of religious sentiments" (p. 46). And he describes in a very curious manner the process by which this filial love is transferred from the parents to God, a process observable in its spontaneous form in the case of deaf and dumb children. M. Bovet likewise shows that, in spite of frequently bizarre ideas of God, children are capable of religious experiences that are "at times singularly lofty and profound" (p. 93), whether in respect to the mystical or the moral aspects of religion.

Finally, a completely new field of religious psychology has been opened up by M. Raoul Allier in his work *la Psychologie de la Conversion chez les Peuples non civilisés*,<sup>29</sup> a study long in preparation, based on the narratives of

<sup>27</sup> Thesis defended before the *Faculté libre de théologie protestante* of Montauan, 1913, 2nd ed. enriched by note and appendices, Paris, Fischbacher, 1926. The same author has published *l'expérience de la Vie Eternelle*, Fischbacher, 1923. In this book he pretends to establish the reality of a beautiful experience reached by "personalistic mysticism" which is supposed to have attained its perfect form in Jesus. Unfortunately this important thesis is defended by a very superficial argument.

<sup>28</sup> Neuchatel and Paris, Ed. Delachaux et Niestlé, 1925.

<sup>29</sup> Two volumes, Payot, 1925 and 1926.

Protestant missionaries and indeed full of interest but too recent to permit of analysis here.

## V.

During this brief period, unusually broken into and impoverished by the war, we find that religious problems and phenomena have nevertheless given rise, in France, in Switzerland and in Belgium, to not unimportant works, especially in the psychological domain. And we could still further notably prolongate our list if we would mention the more specialized studies from which the philosophy and the psychology of religion can derive profit. Let us at least here mention two works no less different in the spirit of their authors than in their dimensions: the documented and shrewd biography presented by the late Albert Houtin of an abess of Solesmes<sup>30</sup> and the comprehensive *Histoire littéraire du sentiment religieux en France depuis la fin des guerres jusqu'à nos jours* edited by M. Henri Bremond with as much of talent as of erudition.<sup>31</sup> May I direct attention also to the voluminous work devoted by Father Pinard de la Boullage to *L'étude comparée des religions*,<sup>32</sup> a book so rich in objective and well classified information that it has been highly praised by a critic as little liable to partiality towards a Jesuit as the aforesaid Houtin?<sup>33</sup> During this same period there have been established at least four new reviews devoted to the religious sciences, two of which specialize in the problems of asceticism and mystic-

<sup>30</sup> *Une grande mystique. Madame Bruyère, abbesse de Solesmes (1845-1909)*, Alcan, 1925. This volume contains a long memoir in which Dom. Sanson denounces "the folly of pride and of mystic delirium" which the abess had communicated to the monks of Solesmes.

<sup>31</sup> Six volumes, Bloud et Gay, 1916-1922. One might regard as similar the book of P. Pourrat on *la Spiritualité Chrétienne*, 3 vols. 1918, 1921 and 1925.

<sup>32</sup> 2 Vols.: I. *Son histoire dans le monde occidental*; II. *Ses méthodes*, Beauchesne, 1922 and 1925.

<sup>33</sup> *Revue d'Histoire des Religions*, 1923, p. 282.

ism.<sup>34</sup> No less significant, along its own line, is the success of such series as *Christianisme*,<sup>35</sup> *Judaïsme*,<sup>36</sup> and *Maîtres de la Pensée Antichrétienne*.<sup>37</sup> Perhaps the very wealth of the materials amassed in the field of religious phenomena has begun to make their synthetic utilization singularly difficult. It must be acknowledged that, as regards religious philosophy, this last decade is far from having given birth to as many good original works as the preceding quarter-century. The strictly philosophical works which we have mentioned are all of the nature of popularizations or of brief sketches. Most of them present in a new form ideas that had already been advanced. The only exceptions are the publications of M. Loisy and of M. Baruzi for, even though the one writer approximates the sociological thesis and the other the idealistic view, both exhibit a peculiarity, rare in France, namely, that of ascribing an irreducible value to both religious and mystical experience without adhering to any kind of orthodoxy.

But, truth to say, the period which we have studied appears to us more valuable for what it paves the way to than for what it itself contains. Not only does it afford many signs of its own interest in the study of religious facts but there are reasons for believing that important synthetic works are about to see the light. We have already mentioned the promise of M. Mauss and we expect that

<sup>34</sup> These latter two are the *Revue d'Ascétique et de Mystique*, founded in 1920, and *La Vie Spirituelle Ascétique et Mystique*, founded in 1919. The former, more speculative in character than the latter, contains carefully worked out articles and accounts. The two other reviews come from the University of Strasbourg: the *Revue d'Histoire et de Philosophie religieuses*, founded in 1920 by the faculty of Protestant theology, and the *Revue des Sciences religieuses*, founded in 1921 by the professors of the faculty of Catholic theology. Both are very important. Let us mention also *la Nouvelle Journée*, the valiant organ of the Catholics who favor the philosophy of action, founded in 1919 and discontinued in 1924 in order to give place to the *Cahiers de la Nouvelle Journée*.

<sup>35</sup> Published by Rieder.

<sup>36</sup> Published by Rieder.

<sup>37</sup> In the *Editions du Siècle*.

his collaborators will soon give a new lease of life to religious sociology. Will not M. Levy-Bruhl one day complete his account of primitive mentality by a work seeking to trace its genesis? As to religious psychology, it is in too vigorous a swing to stop now. We await with impatience the conclusion of the studies of Father Maréchal, the book in which M. Baruzi will develop his conception of a mystic experience, and the treatise which M. Pierre Janet is preparing and to which he has already given the title: *De l'angoisse à l'extase*.<sup>88</sup> Finally, with strict reference to philosophy, the most vigorous thinkers are far from having spoken their last words. M. Blondel is announcing the early publication of several volumes: *La Pensée*, *L'Etre* and *L'Esprit Chrétien*. M. Le Roy, who has during recent years attacked the whole of the religious problem in some remarkable lectures, is working at a more complete exposition of his own philosophy. We hope that circumstances will soon permit Father Laberthonnière to publish the works composed during thirteen years of silence. Finally, M. Brunschvicg ought to give us a thorough and independent treatment of the problems which he has only touched upon in passing or by way of conclusion from other studies.

Most certainly we find ourselves in the presence of irreconcilable differences. In this field more than in all others it seems impossible to eliminate the personal factor. Among the readers of this very article will not more than one regret that we have judged too favorably this or that work whose tendency displeases him? What is now important is that the various thinkers submit their personal convictions to the double proof of observable facts and of opposing doctrines. This is a work already largely begun, and not without gain, but which it is necessary to push even further. Indeed, although a certain division of intellectual

<sup>88</sup> He has published a chapter of it in the *Journal de Psychologie normale et pathologique*, May 15 and June 15, 1925.



labor is here as everywhere imperative, nothing would be more pernicious than to confine the different theories in separate enclosures or to establish a barrier between the empirical study of religious facts and the philosophy of religion. Perhaps some of the authors whom we have mentioned have never elsewhere than in these pages been brought together and yet they all discuss one and the same subject. Never will a psychological or social interpretation of religious facts dig at all deeply without striking the metaphysical problem; and never will a solution of this problem have force if it has not drawn heavily upon experience. In the last analysis one must always confront the given facts of history and of psychology with the total requirements of the spiritual life, a task which does not exclude the most daring of personal interpretations, provided one is conscious of their character and is concerned to distinguish the different stages intermediate between opinion and certainty.

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## THE THEORY OF SENSU: AN ASPECT OF CURRENT REALISM

**I**N the second part of his *Scientific Thought* Dr. Broad has set forth a view of the nature of sensible appearance which he calls the Sensum Theory. Other thinkers, notably Mr. Bertrand Russell, had previously advocated a view of the same type, but it has remained for Mr. Broad to work it out in detail and present us in its terms with a systematic exposition of the nature of the external world. Apart from its intrinsic interest this theory is significant as one of the latest developments of the realistic tendencies of recent philosophical thought. In the present paper I propose to attempt an examination of some of its main features and to suggest some considerations which seem to me to be fatal to it.

Mr. Broad offers his theory as a solution of certain contradictions, or at least discrepancies, revealed in our ordinary perceptual judgments. "Difficulties always arise when two sets of properties apparently belong to the same object, and yet are apparently incompatible with each other. Now the difficulty here is to reconcile the supposed neutrality, persistence, and independence of a physical object with the obvious differences between its various sensible appearances to different observers at the same moment, and to the same observer at different moments between which it is

held not to have undergone any physical change. We know, e. g., that when we lay a penny down on a table and view it from different positions it generally looks more or less elliptical in shape. The eccentricity of these various appearances varies as we move about, and so does the direction of their major axes. Now we hold that the penny, at which we say that we were looking all the time, has not changed; and that it is round, and not elliptical, in shape. . . . The difficulty is to reconcile the different appearances with the supposed constancy of the penny, and the ellipticity of the appearances with the supposed roundness of the penny." (pp. 234-5.) We do not get rid of the difficulty by saying that appearances are unreal. "If an appearance were unreal, nothing would appear, and if nothing appeared, there would be nothing for scientific theories to account for." (p. 242.) In some sense, then, appearances are real. On the other hand, what we commonly take to be real—e. g., the roundness of the penny—is, whatever more it may be, an appearance. What, then, do we mean by saying that, though the penny sometimes looks round and sometimes elliptical, it really *is* the one and not the other? May not the answer be that another sense, the sense of touch, supports the visual impression of roundness and discredits that of ellipticity; and that, on account of its practical importance, we make this sense our test of reality? In other words, the evidence of one sense would be confirmed or disallowed by the evidence of another sense, and not by reference to some criterion other than either of them. This suggests that what we call a physical object may be simply the sum of all the different appearances which, as we should say, it presents to our different senses. This is Mr. Broad's solution of the difficulty. He holds that appearances are themselves objects, apprehended in "acts of sensing;" and such objects he calls "sena."

A *sensum* is related to other *sensa* in the same sense-field, but between *sensa* in different fields, e. g., between visual and tactual *sensa*, there is no intrinsic connection. It is our minds which co-ordinate groups of visual, tactual and other *sensa* with one another, and so come to form the notion of perceptual objects. The question arises whether such a transition from awareness of *sensa* to belief in perceptual objects is possible. Mr. Broad holds that it is, and devotes a large part of his book to a detailed account of the manner in which he supposes this process to take place. It seems to me that here he has attempted an impossible task—impossible because the objects of the different senses have been separated so completely that they can only be brought together again by illicitly introducing an aspect of unity which has been formally denied to them. I shall try to show that Mr. Broad's account is open to this objection.

The separation between the elements which constitute the objective side of experience is paralleled by an equally rigid severance between its subjective factors. The mental processes which yield us our perceptual world are sharply contrasted with the acts of sensing which provide those processes with their data. Thought and sensation are not, for the *sensum* theory, distinguishable but inseparable aspects of experience; they are different mental facts. From such a standpoint it is not surprising to find that the transition from sensation to thought is regarded less as the development of our knowledge of a real world than as the formation of the idea of a fictitious one. If we hold that this view of the nature of experience is erroneous, we shall expect to find (and I shall try to show that we do find) that here too the aspects which have been neglected take their revenge on the theory by insinuating themselves unobserved into its texture.

The criticisms I wish to make on the *sensum* theory may

be summarised in three propositions, which I shall discuss, as far as possible, separately: I. Analysis of sensible appearance does not reveal any such objects as *sensa*. II. The *sensum* theory can only obtain certain results by making percepts do the work of *sensa*. III. The account of the transition from *sensa* to perceptual objects is vitiated by assuming these results and by the illicit use of the notion of correlation.

## I

In the first place, we must agree with Mr. Broad that sensible appearances, if not, as he claims, as real as anything else, are at least in some way real. But when he identifies sensible appearances with *sensa*, i. e., with objects of acts of sensing, he cannot expect such ready assent; for it may be urged that pure sensation is the figment of an obsolete psychology. And if there is no such mental fact as an act of sensing, what becomes of its object, the *sensum*? It seems unfortunate that the *sensum* theory should have to stand or fall with so dubious a concept as that of pure sensation.

It is, however, for the moment, more to my purpose to examine the sensible appearances themselves, than to inquire into the nature of the mental process by which they are apprehended. If we are to be asked to regard these appearances as objects of which we become aware in the process of sensing, we ought to be left in no doubt as to what is to be taken as *one* appearance or *sensum*. Mr. Broad works with the *sensum* as the physicist works with the atom, and we have a right to expect from him as definitive an answer to the question "What is one *sensum*?" as the physicist would give to the question "What is one atom?" But for such an answer we look in vain. Mr. Broad, indeed, appears to determine his *sensa* not by analysis of sense-fields but by reference to physical objects. A certain

brown, elliptical portion of the visual field is distinguished from its surroundings and regarded as a sensum because it is believed to be the appearance of a penny. This is unsatisfactory. If the limited sensum, as distinguished from the whole sense-field, cannot be defined except by reference to a perceptual object, then the perceptual object is logically prior to the sensum and not vice versa. And it would seem that in no other way can the limited sensum be defined. Examination of our sense-fields themselves gives us little help. The visual field, for example, is sensibly continuous throughout, and does not lend itself to attempts to analyze it into a number of units. We may, indeed, if we so choose, regard a visual field as made up of parts; but if we do so, there is not one way only, but an indefinite number of ways in which we may divide it. And each of these parts is itself a limited visual field which we may subdivide further. We can only reach true units by abandoning the principle on which the sensum theory is based—that of taking appearances at their face values. The penny may consist of atoms, the space which it occupies may consist of points, but we do not sense atoms or points. If then we are to accept the evidence of sense, we cannot recognise as a unit anything less than a whole sense-field. But such a unit is unmanageable. It must be considered *as if* it were made up of smaller units if the theory is to be got to work at all. That element of fiction, then, which, according to Mr. Broad, enters so largely into the constitution of the physical object, is also present in the units into which he would dissolve it.

Mr. Broad's treatment of the status of the limited sensum is inconsistent. In general he speaks of *sensa*, and makes use of them, as if they were true units which we discover in sensible appearances. But in one or two passages he recognises that they are only portions of sense-

fields. "I define a sensum as a part of a sensible field" (p. 384); "Sensa are simply outstanding features in sense-fields" (p. 517). These are not helpful statements. Mr. Broad does not seem to realise that the persuasiveness and even the intelligibility of his theory largely depend on our being able to take the sensum as a real unit, and that they tend to disappear if we find that it is only a vaguely defined portion of a sense-field.

Fresh difficulties arise when we take the time factor into account. Here, too, there seems nothing in the nature of the appearances themselves to indicate when one sensum ends and another begins. The concept of the Specious Present, whatever its psychological value, does not help us here. For time, as we apprehend it, does not consist of a series of atomic specious presents; the fact is rather that these flow into one another in such a way that any duration less than a specious present may be taken indifferently either as the later part of an earlier, or as the earlier part of a later, specious present. The only ground for holding that a new sensum has taken the place of an old one would appear to be a change of quality. But change is usually gradual and continuous rather than sudden and catastrophic; and the theory is therefore faced with the question: Is any change, however slight, to be taken as creating a different sensum? I will quote Mr. Broad's answer. "I have not considered that complete identity of place, shape or sense-quality is essential to the identity of a sensum. I therefore recognise the identity of sensibly moving and sensibly changing sensa. . . . Anyone who disapproves of it has merely to make appropriate modifications in his definition of the word sensum." (p. 357.) Here again is the same vagueness in the determination of the sensum which we found in the treatment of its spatial limits. We are at liberty to admit a larger or smaller

amount of change into the constitution of a single sensum according to our individual notions as to the most convenient method of division: the facts themselves impose no one course on us. This is surely unsatisfactory. The aim of the theory is to distinguish the fictitious, or what Mr. Broad calls the "Pickwickian" elements in the concept of a physical object from the sense-units of which the object is actually composed. But are not units that we can modify in this way to suit our convenience in arranging our data equally open to the charge of existing only in a Pickwickian sense?

Mr. Broad's own choice here, as we have seen, is to regard some small amount of change as possible within the limits of a single sensum. But he does not hold consistently to this view. He tells us frequently elsewhere that when a sensum  $s$  appears to undergo a continuous change, what really happens is that we apprehend a succession of *sensa*  $s_0, s_1, \dots, s_n$ , each a little different from the preceding one. Both views are open to serious objections. The second one is refuted by examination of the experience itself. In such cases as we are considering—e. g. when a visual object seems to grow larger as we approach it—we cannot regard the process as made up of parts. The difficulty is the same as that which we found in considering the extensiveness of *sensa*. We can divide the total appearance neither into a finite nor an infinite number of units; for any division into a finite number would be arbitrary, while infinitesimals are not sensed at all.

While this interpretation of the process of change mutilates the facts, it is at least consistent with Mr. Broad's original definition of the sensum. The alternative view, in which he states that change takes place in the sensum itself, seems to me to be inconsistent with that definition and with the theory based on it. For the sensum is defined in a way



which makes it necessarily a static object: it is a certain appearance only—just *this* appearance and not *that*. How can change take place in an object so defined? If I turn a penny between my fingers so that it looks at first elliptical and then round, the ellipse and the circle are different appearances. They should therefore be different *sena*, since *sensum* and appearance are two names for the same thing. This is of course Mr. Broad's own solution of the difficulties in our judgments about physical objects. Yet for the view we are at present considering, this would be a typical case of a single *sensum* containing change within itself. The two appearances are therefore different *sena* and yet one *sensum*.

There seems to be only one possible way of escaping from this contradiction, namely by admitting into the concept of *sensum* some other element besides that of appearance. The *impasse* in which the theory here finds itself suggests that in speaking of appearance, apart from anything that appears, we are not getting down to hard fact but dealing with an abstraction. But if the necessary modifications were introduced into the concept of *sensum*, the result would be that the theory would be transformed beyond recognition. For in the first place, the alterations would entail the reversal of a principle which underlies Mr. Broad's whole treatment; while in the second place the term *sensum*, with its implications, would have to go.

To take the first point: the principle constantly applied by Mr. Broad is that in every object which seems to contain different elements all that is to be taken as real is the different elements considered severally, the unity between them being contributed, or imputed to them, by our minds. The concept of identity in difference is valid only in a "Pickwickian" sense. It has no root in reality, but is a device which we use to enable us to look on masses of heter-

ogeneous entities as if they constituted one object. It is to be noted that it is only on the assumption of the truth of this view that the difficulty which gives the point of departure for the sensum theory amounts to a contradiction. Mr. Broad admits that this difficulty may be soluble in other ways, for example by the Multiple Relation Theory. His preference for the sensum theory seems to be due to the fact that it offers a possibility of avoiding the use of the concept of identity in difference, while the other does not. However this may be, when once this theory is adopted, that concept is automatically excluded. For example, while it is impossible that a penny should be both round and elliptical in the same sense, there is no reason from the commonsense standpoint why it should not be both round and hard; but the sensum theory leaves us no option but to say that there are two objects, one round, the other hard. Yet we have seen that in asserting that a sensum may change and yet remain the same sensum, the theory has to recognise that in such cases sensible differences are not incompatible with an identity of some kind.

It may be added that the mere admission into the concept of sensum of another element besides that of appearance would in itself be a denial of the principle which guides Mr. Broad's usual procedure. For on that principle the sensum as newly defined should then consist of appearance plus the new element. If the sensum were thus disintegrated, the difficulties would break out afresh; if it is left integral, the guiding principle has been abandoned.

Secondly, if the sensum were re-defined in such a way as to provide for its maintaining its identity while undergoing change, the theory could hardly fail to take on a very different aspect. For one thing it would lose its clear-cut

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definiteness of statement: its outlines would cease to be sharp and would become blurred and indistinguishable. There is an attractive simplicity about a view which tells us that the way of escape from the difficulty of holding that an object may be both round and elliptical is to recognise that the round appearance and the elliptical appearance are not attributes of the one object but are themselves objects. But we are thrown back into confusion if it is added that the round appearance may become elliptical and the elliptical appearance become round. The notion of sensum as bare appearance having been abandoned, how is the theory to define the elements into which it would decompose the perceptual object? I cannot see how this question is to be answered. It was the static nature of the appearance which enabled it to be used as such a unit. Its identity consisted in its being just such-and-such an appearance; the slightest change brings about a different appearance, similar to the previous one, no doubt, but necessarily not the same. The recognition of the fact of continuous change as a process which cannot be split up into a succession of such static units, each differing in a minute degree from the preceding one, shows, as we have seen, that these bare appearances are abstractions from the sensible facts and not the elements of which those facts are composed.

Let us see how Mr. Broad deals with this question of the limits of the changing sensum. "It might happen that, as we divide up the sensible field into successive thinner sections, we find that in each section there is a sensible field occupied by the same sense-quality. Moreover, the shapes of these sensible places might be indistinguishable. But the sensible places occupied by this quality in successive sections of the sensible field might differ. And it might be found that the thinner we made the sections the more nearly alike were the sensible places occupied by this quality in adjacent sections. On the grounds of this con-

tinuity of place and identity of shape and sensible quality, we should be justified in saying that we were dealing with a single sensum, which persists throughout the whole of the sensible field. In real life it is unlikely that the shapes of the successive places would be exactly alike, or that precisely the same sense-quality would occupy each of them. But, provided that the change of shape and of sense-quality was continuous in the sense defined above, we should still say that we were dealing with a single sensum; but should add that it changes sensibly in shape and quality as it sensibly moves." (p. 356.) This statement, however, does not meet the needs of the case. The identity of shape and sensible quality is a matter of degree: we sometimes find more, sometimes less. Within certain limits of change we may speak of one sensum, beyond those limits we have different *sensa*; but where, or on what principle, to assign those limits, Mr. Broad does not tell us. It is, as we have seen, a question which each of us may answer differently to suit his own purposes; we can extract no answer from the facts themselves.

Let us assume, however, that we have decided on some method of delimiting the sensum. The question now arises whether "*sensum*" is not an inaccurate and misleading term for the objects with which Mr. Broad is concerned in the passage I have just quoted. For a *sensum* is an object of an act of sensing; and the mental activity involved in the apprehension of a process of change is something more than sensing. It is essentially a perceptual activity. This brings me to the second part of my inquiry.

## II

Let us consider movement, as a special case of change. We are told in the foregoing passage that we sense movement. This, I think, is a mistake. We certainly *see* movement, but that is not the same thing. Let us take a case

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from Mr. Broad where obviously more is implied than sensing. "It is a notorious fact that we do not merely notice that something has moved or otherwise changed: we also see something *moving* or *changing*. This happens if we look at the second-hand of a watch or look at a flickering flame. These are experiences of a quite unique kind; we could no more describe what we sense in them to a man who had never had such experiences than we could describe a red colour to a man born blind." (p. 351.) This is clearly not a purely sensible, but a perceptual experience. We *see* the second-hand moving, and do not merely sense it, because the second-hand is not a sensum but a perceptual object. But let us forget that such a physical object as a watch is before us and reduce the experience to its simplest terms. Let us ask what is implied in the most rudimentary awareness that something is moving. First let me remind the reader that Mr. Broad holds that at the sensible level the formal and the material aspects of a sense-field—for example, visual extension and the coloured objects which, as we say, fill it—are not distinguished from each other. And further, when we do come to separate them in thought, we are, in his view, not gaining further insight into reality, but taking the first step from the real world of sensa into the factitious world of physical objects. Now it is evident that in the most primitive apprehension of motion we must already have taken this step. "That is moving from there to there: where all was white before, it is now partly black." The most elementary awareness of motion must involve some such recognition. We have here, therefore, though as yet only in terms of one sense, the rudiments of a perceptual object in a perceptual world: an object which retains its identity through change, in an environment in which those changes take place. If the question be asked: What then are the sensible facts which appear on the perceptual

level as awareness of motion, the answer, of course, is that my whole contention is that there are no merely sensible facts. What we call sensible appearances always involve more than sensing.<sup>1</sup>

It is remarkable that Mr. Broad himself gives instances which illustrate the impossibility of isolating the sensible from the perceptual elements in experience, without apparently realising how damaging such facts are to his position. I will quote two of these. "When I look at the 'staircase figure' which is given in most psychology textbooks as an instance of ambiguous figures, it seems to me that it actually looks sensibly different from time to time. Its sensible appearance changes 'with a click,' as I look at it, from that of a staircase to that of an overhanging cornice. *This change tends to take place as I concentrate my mind on the idea of one or on that of the other.*"<sup>2</sup> Now, on the present analysis of sensible appearance, such a change as this involves an actual qualitative change in the sensum. So far is it from being a mere change in the judgments which I happen to base on one and the same sensum that the direction of my thoughts changes first and is the condition of the change in the sensible appearance." (p. 260.) "When I believe that the object I am looking at is the sort of object that will not move, and when I am sensing it under normal conditions, the *sensa* keep still, in spite of the movement of the stimulus, provided this movement is caused by the voluntary turning of my head. Thus it seems to me to be clear that one condition which partly determines

<sup>1</sup> Compare on this whole question H. N. Randle in *Mind*, July, 1922.—"The entirely gratuitous difficulty which is often felt about the perception of motion, in particular, simply arises from the substitution of sense-data for the truly functional thought-element, the sensible appearance. There can be no sense-datum or impression of movement, because the sense-datum, like the individual cinematograph film, stands for a moment of rest, and though you may attempt to counterfeit continuity (as the cinematograph does) by filling the interstices of your fragmentary sense-data with an infinity of sub-conscious impressions or *petities perceptions*, you will never succeed in passing from instantaneous immobilities to a moving continuity."

<sup>2</sup> My italics.

the present motion or rest of my visual *sensa* is my beliefs as to the motion and rest of the objects of which these *sensa* are appearances. These beliefs must be due to past experiences, not wholly visual, in connection with similar *sensa*." (p. 288.) The awkwardness of such facts for the *sensum* theory is obvious. Physical objects, we are told, are made up of *sensa*, but we now see that some *sensa*, at least, are partly dependent on our perception of physical objects. In so far as these *sensa* are concerned, the theory moves in a circle. Such *sensa* are useless for Mr. Broad's purposes. But how are pure *sensa* to be distinguished from those with this perceptual ingredient? How can we be sure that any are above suspicion?

Mr. Broad's discussions of the problems of visual solidity and visual distance yield further evidence of the difficulty of disentangling purely sensed elements from the perceptual context in which they appear. One result of these discussions is to bring out the fact that "the past history and present expectations of the percipient must be supposed to be partial conditions of some of the qualities and relations of *sensa*. This cuts out at once any of those cheap and easy forms of naïve realism which are produced in mass and exported in bulk from the other side of the Atlantic." (p. 299.) Excellent, if only it ended there! But unfortunately it also seems to go a long way towards cutting out the *sensum* theory itself. *Sensa* which are conditioned by the past history and present expectations of the percipient do not answer the requirements of that theory: it can only use as data those which are free from this perceptual taint.

Such *sensa* Mr. Broad would find in the phenomena of visual solidity and depth. He says "I find it very hard to believe that experiences of touch or movement could *create* a third dimension in visual *sensa* which originally had only

two." (p. 290.) Again, visual solidity "does not consist of visual flatness together with judgments about past or future tactual sensations." (p. 291.) On this we may reasonably ask whether there is anything more remarkable here than in any recognised case of "complication." "Ice looks cold because we have felt it to be cold. . . . Yet its cold look is not a suggested idea; nor is it a distinct temperature sensation. It is something which is included in the visual appearance as an integral part of it." (Stout, *Manual*, Bk. I. Ch. II. 10.) Mr. Broad, I suppose, would take no exception to this statement; nor would he draw the conclusion that temperature is an original quality of visual sensa. If our tactual experiences can produce an effect of visual coldness, why should they not also produce an effect of visual solidity?

Further, there is a kind of *petitio principii* lurking in Mr. Broad's argument. He assumes that solidity must either be in the sensa or be the result of a judgment. But the disjunction here is only an exhaustive one to those who have already accepted his thesis that perceptual experience consists of sensa plus judgments about them. It is open to those who do not assent to this thesis to hold that solidity is neither a quality of a visual sensum nor the object of a judgment. It has been held, for example, that space is not an object of sense but of intuition. If this be so, there is nothing incredible in the supposition that the visual sense may provide us with the material filling for two dimensions of space only. The question could only be settled by a careful examination of the visual appearances, so far as we can attend to them apart from the perceptual contexts in which they are found. In so far as this can be done, the result would seem to be that the impression of solidity and depth is greatly lessened, while it returns again in full force as we return to a normal perceptual outlook. There are

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other facts which point in the same direction. Men born blind whose sight has been restored are said at first to see everything, as it were, crowding in on their eyes. It is significant, again, that landscapes can be successfully counterfeited on pieces of flat canvas. There seem, then, various reasons for thinking that visual solidity and depth are qualities not of sensation but of perceptual objects.

It is worth while examining Mr. Broad's method of meeting a difficulty which he admits in the case of distance. "A special difficulty with which we must now deal has been felt about ascribing distance to visual sensation. It is argued that distance is essentially a relation between two terms, and that a relation cannot literally be sensed unless both its terms are also sensed. Thus we do not visually sense a given line, unless we visually sense both ends of it. Now we certainly do not visually sense our own retinae, and therefore it is impossible that we should visually sense the distance of visual sensation from them. This is a perfectly sound argument, and to meet it we must draw certain distinctions:

"(1) The first thing to recognise is that the awareness of visual sensation is primarily an awareness of the distance between two visual sensations, and is not an awareness of the distance of either of them from our own retina. . . . I am aware of a visual field in which different parts have different depths. What I sense as visual distance is the *difference of depth* between two sensations in this field.

"(2) We must therefore distinguish between visual *depth* and visual *distance*. Depth is a sensible quality, not a sensible relation. Visual distance is a sensible relation between two visual sensations, *founded upon* the difference of their respective depths. . . . If we only sense a single visual sensum (say a luminous flash on a perfectly dark night) we do not sense distance but we do sense depth. . . .

"(3) *Sensa* are at no distance from our retina, not in the sense that they are at zero distance from it, as the points of contact of two billiard balls are from each other when they hit, but in the sense that the concept of visual distance does not apply at all to anything but pairs of visual *sensa*." (pp. 297-299.)

This argument is ingenious, but I do not think that it can stand. The position Mr. Broad takes up here is very curious. He states that where we only sense a single visual *sensum* we do not sense distance. This is a serious admission, for we seem to be as directly aware of distance in the case of a single object as we are of the differences in distance between several objects. These facts would suggest that distance is a quality not of *sensa*, but of percepts. It is further very difficult to see how, if depth in the case of a single *sensum* has no implication of distance, such an implication could arise when several *sensa* are apprehended as parts of a sense-field. What Mr. Broad means by sensible depth is left in some obscurity; but he may be confronted with this dilemma: Depth is either a relational quality, implying in itself the relation of distance, or it is not. If it is, then since we are aware of it when there is only one *sensum* present, and when the relation can therefore only be that between the *sensum* and the retina, nothing has been gained by substituting the term depth for distance. But if it is not, then it can only be a unique quality belonging to the *sensum* itself, like green or red, but unlike them inasmuch as it happens to be possessed by all *sensa* at a certain distance and no others. Differences in depth would then have no intrinsic third-dimensional character; they would be simply qualitative differences which we learn to *interpret* in terms of the third dimension. Distance, in this case, would not be sensed, but perceived.

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Let me enforce this conclusion by borrowing Mr. Broad's instance of a luminous flash. I am puzzled by a mysterious light which suddenly appears (as I think) on the sea front a hundred yards away. It disappears and returns again, and I recognise it as the revolving light of a distant light-house. As I do so, I do not only *judge* it to be farther away; it seems visibly to recede into the distance. Its visible depth, then, is no constant which it possesses as a sensum, but a variable which is determined by its perceptual meaning.

The question of sensible depth is of special importance owing to the part it plays in Mr. Broad's account of the manner in which we come to form the notion of the perceptual object. To this problem we must now turn.

### III

Let us be quite clear as to the nature of the task which Mr. Broad has here set himself. It is not to show how, with sensa as our clues, we come to discover the physical world, for that world is not there for us to discover. What *is* there is a number of independent sense-fields (visual, tactual, auditory, etc.) connected only by the fact that we sense them at the same time. Not, however, in the same space also, for each sense-field has its own space, or rather *is* its own space. The problem, then, is to discover how, with such materials as its only data, the mind comes to form the notion of a coherent physical world, of which these data are regarded as only aspects or properties.

There are two distinguishable though closely related questions: how we come to form the notion of our own bodies and how we come to form the notion of other objects. Let us, with Mr. Broad, consider the latter question first.

The following is a brief outline of the process by which

we come to acquire a belief in perceptual objects, as described in the chapter on "Positions and Shapes of Sensa." It is to be borne in mind that, for Mr. Broad, this is equally an account of the nature of those objects; for they exist only in being apprehended: their *esse* is *percipi*. An observer senses a visual sensum  $s_0$  in the middle of a field  $f_0$ . He walks towards it, and, as he does so, senses a series of visual fields  $f_1 \dots f_n$  in the middle of which are sensa  $s_1 \dots s_n$  respectively, similar to  $s$  but continually increasing in size and diminishing in visual depth. At length he senses tactual sensa correlated in shape with the visual sensa; and hence comes to identify the seen place with the touched place. This place is essentially a place in the movement continuum, i. e. the continuum of the successive positions of the observer's body as he approaches the sense-object. The foregoing statement needs further elucidation, for words like "walking" have been used which imply physical space. Mr. Broad explains that when we walk what we are actually aware of is a series of kinaesthetic and muscular sensations, and that the series is "interpreted as the traversing of a physical line of a certain length by the observer, because the sensible depths of the similar sensa  $s_1 \dots s_n$  in the middle of the successive fields  $f_1 \dots f_n$  continually diminish as the series lasts longer." (p. 315.)

There are several features in this account which seem open to objection. I have suggested that to regard our visual experience as we approach an object as a series of different but similar sensa is to misrepresent the facts, asserting discreteness where there is unbroken continuity. But here we see that by this procedure Mr. Broad actually increases his difficulties. Why should a decrease in the depths of *similar* sensa be interpreted as the traversing of a physical line? Before such an in-

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terpretation can have even a *prima facie* plausibility, the unity which has been taken away from the sense-object has to be restored to it "in a Pickwickian sense." But even when this has been done, we may still ask why a decrease in the sensible depth of the one sense-object should be interpreted as the traversing of a physical line. I have attempted to show that the difficulties raised by visual distance are not solved by the introduction of the notion of sensible depth. If "depth" is to serve any useful purpose, it can be shown to be more than merely "sensible." The argument, therefore, in so far as it depends on awareness of sensible depth, is accounting for the perceptual world in terms which presuppose it.

The same objection obviously applies to another feature in the account. The movement-continuum, we are told, is the continuum of possible positions of the observer's body. That body, of course, is itself a perceptual object. Before we can form a notion of other objects, therefore, we must have some idea of our own bodies. We have now to ask what light the sensum theory can throw on the process of forming the notion of our own bodies.

Mr. Broad's treatment of this subject (in the chapter on "Sensible and Physical Motion") is pervaded by the idea of *correlation*. This term, as we have seen, plays a part in the account of the process by which we come to acquire the notion of objects other than the human body. But in the case of our own bodies correlation is a far more constant and important factor. "With other objects that appear in my visual sense-history I have to initiate a certain series of translatory kinaesthetic sensations before I can sense any correlated tactual sensa." (pp. 438-9.) Not so in the case of the observer's

own body. Not only is correlation here a much more general feature of experience, but also even where it fails it is often helped out by suggestion. "Only a very small part of these tactual sensa will be correlated with his visual sensa. But I can start with a visual appearance of my hand visibly in contact with a visual appearance of some part of my trunk, and can gradually move my hand so that its successive appearances in successive fields are nearer and nearer to the extreme edge of the appearance of my trunk. At length I shall no longer be able to see my hand; but the characteristic sensa will still be sensed, and they will be continuous with those earlier ones which *were* correlated with the visual appearance of my hand visibly in contact with the visual appearance of part of my trunk." (pp. 440-1.)

It will be seen from these passages how important is the part assigned to correlation in the process of forming the idea of the human body. But what *is* correlation? What is meant, for instance, by saying that a tactual sensum is correlated with a visual sensum? It seems clear that, as time is the only connecting link between tactual and visual sensa, all that *ought* to be meant is that we sense the two sensa at the same time. It does not seem possible, however, that mere connection in time could yield the detailed correspondences that we need; nor does Mr. Broad suggest that it could. Correlation for him means more than connection in time. But what else can it mean? It seems to me that any answer to this question must break down the self-containedness of the sensum and the mutual exclusiveness attributed to the sensa of the different senses. The sensum theory asserts that our sense-data, to be rightly understood, should be taken at their face value; it denies that they convey information about anything other

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than themselves. What I wish to urge is that the introduction of the idea of correlation is inconsistent with the view of the function of sense-data which the theory maintains, and implies the view which the theory rejects.

Correlation, for Mr. Broad, is not merely connection in time, but means essentially correspondence in shape, or spatial form. If this conception is to be of service, both visual and tactual sensa must literally possess shape in the same sense. It would not avail, of course, to say that shape is literally visual and is only applied to tactual sensa in a Pickwickian sense; for it is not until correlations have been made that Pickwickian senses arise. Whether they are "numerically" identical or not, therefore, tactual space and visual space have an identical nature, in spite of the fact that they are apprehended by modes of sensing so different as seeing and touching. This fact is open to two interpretations. Either spatial form is immediately sensed, or else, though not itself sensed, it is something about which our senses yield us information. The second alternative clearly strikes directly at the foundations of the theory, but the first is not less fatal to it. For it cuts the ground from under the assumption that the object of one sense is *ipso facto* different from the object of another sense; and this is none the less true even if it be still held that visual space is numerically different from tactual space. But when this is recognized, there seems no longer any ground for holding that visual and tactual space are two and not one. For a spatial form which is the same for two such diverse kinds of material as visual and tactual sensa cannot be merely an attribute of, or an abstraction from, these sensa; it must have a certain independence of either. There seems no

reason why a space so conceived could not be occupied by both visual and tactual sensa. And this is just the commonsense view which the theory is seeking to subvert.

It seems, however, inaccurate to speak of shape as being sensed. This is fairly clear in the case of tactual sensa. As Mr. Broad remarks, "passive touch, considered by itself, gives very vague information about shape." (p. 340.) If we learn more from active touch, this is because active touch is not only a tactual experience but an experience of movement. This apprehension of movement, however, as Mr. Broad also tells us, is not in itself a spatial experience, but a series of kin-aesthetic and muscular sensations which we learn to interpret as spatial experiences. But this interpretation is itself exhibited as a result of correlation, and the argument thus moves in a circle. On the one hand it is only by correlation that we get beyond sensa; on the other hand we must have got beyond sensa before correlations can be made.

Though we get more direct information about the shape of an object from sight, even the visual shape is something more than a sensum. When we say that a penny looks round, has "round" a merely sensible significance? If anyone says yes, will he maintain the same view if for round we substitute elliptical? The more exclusively geometrical associations of the latter word reveal more clearly the fact that shape is not merely a sensible impression but implies at least an elementary form of measurement; the apprehension of certain relations between the different points on a figure. Shape, in a word, is an object not merely of sense but of the understanding.

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a physical world as a result of correlations of shape between independent objects of the different senses thus seems to me to break down at all points. Yet it is obvious that we can and do compare and correlate the evidence about shape given by the different senses. The explanation is to be found in recognizing that seeing is always more than sensing visual *sena* and touching always more than sensing tactual *sena*.

It is perhaps worth noting that Mr. Broad's account of the way in which we come to form the notion of physical objects is only made plausible by the abstractly intellectual way in which he treats the acquisition of knowledge. If there is originally a conative element in experience, it seems to follow that from the outset we must be in conscious relation to a world of perceptual objects, however vaguely that world may at first be apprehended. One does not see how a conative attitude could exist towards *sena*. From this point of view also the process of correlation appears to presuppose the apprehension in principle of the physical world and to have as its function the development and differentiation of this knowledge.

The view of the role played by mind in experience which emerges from the foregoing discussion is very different from the view taken by Mr. Broad. For him, though he does not put it quite so bluntly, the work of the mind consists in constructing elaborate fictions. But if the criticisms offered in the present article are well grounded, the mind in making correlations is not manufacturing fictitious objects but discovering real ones: whilst its activity is already seen in the materials with which it works; they are not supplied to it, ready made, from outside.

It is at this point that I find it specially difficult to

understand Mr. Broad's position. Knowledge, we are told, is developed from sensation, which is a complex consisting of acts of sensing directed on sensa. From such a starting point we might expect that it would be maintained that experience consists of a succession of sensations and nothing more, and that an attempt would be made to analyse mental processes into a succession of acts of sensing. This would seem to me to be the logical development of the position, but it would clearly be a suicidal course for Mr. Broad to take. For a succession of acts of sensing can only yield a succession of sensa; and an activity other than sensing must therefore be introduced in order to account for our belief in a physical world which is more than a number of sensa. But unless this activity is somehow present in even the most primitive form of experience, it is difficult to see how it ever comes into experience at all. However this may be, it is clear that the process of building up our imagined physical world out of sense-data cannot begin until there is something more on the subjective side of experience than acts of sensing. And when this "something more" is present on the subjective side, there seems no logical ground for speaking of the objective correlate of this mental complex as a sensum, i.e. as the object of an act of sensing. To put the point in another way: if the sensum is merely the object of an act of sensing, how can the transforming mental activity become aware of it at all; and how are we to conceive the relation between this activity and the original act of sensing? The only way out of these perplexities, as it seems to me, is to recognise that more than sensing is involved in the so-called "act of sensing." That this is so is strongly suggested by the use of the word "act" in this connection. For the nearer

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my state of mind approaches to a sensational level, the less can I find in it anything that can intelligibly be called an act. Mr. Broad's consistent use of the expression "act of sensing" seems to me significant, therefore, as indicating in his primitive form of experience the presence of an unacknowledged element. And if the act of sensing is to be rejected, then, I submit, the sensum must be rejected too.

There remain many interesting aspects of the theory which I have not discussed: for example, the further problems that arise when the perceptual world is considered not merely as *my* world but as a world that is common to us all. But as this paper is already too long, I shall not attempt to deal with these questions, but shall conclude with two quite general observations. The first is that only a very slight change in the theory would be needed in order to transform it into a one-sided idealism. For the theory holds that what we regard as our real world—the world that we believe ourselves to inhabit and which contains everything that we value and strive for—*this* world, at any rate, is the product of our mental activity. And even the sensa of which this world is actually composed have a very doubtful claim to independent existence. Mr. Broad tells us that sensa are either selected or generated or both. If selection were eliminated—and it is admitted that there are grave difficulties in holding that they are selected—the sensum theory would end in a thoroughgoing subjective idealism. For in the last resort it must be the mind that generates sensa; the body is itself only a collection of sensa.

The other point—an obvious one—I will put in the form of a question. How would Mr. Broad account for the fact that mutually independent classes of sensa—

visual, tactual, auditory, and so on—exhibit such close correspondences with one another that we can build up the notion of a physical world from them? Would he be content to say that the fact is so, and that we have simply to accept it? This surely would not be philosophy, but the abdication of philosophy. The existence of such striking uniformities offers as genuine a problem to the reason as the difficulties which led Mr. Broad to form his theory, and no less insistently challenges him to seek for an explanation. It cannot be supposed that Mr. Broad is unaware of or indifferent to this challenge.

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## THE APPEARANCE OF VALUES

THE term "appearance" in the title of this article may be interpreted in two senses. It may mean the appearance to *us* of values, or it may mean simply the appearance in itself, the *happening*, of values. I wish in what follows to discuss both these meanings. I propose to explore briefly certain problems of our experience of the thing which we call "value," with a view to discovering whether "value" can be defined in terms of the experience of it, or whether it must be thought to possess objective and independent existence, or whether it may in *some* sense be said to be a product of a subject-object relationship. The first position tends to lead to subjectivism, the second seems satisfactory up to a point, but beyond that presents grave difficulties, whilst the third (which I shall defend) is apt—when it is clearly visualised at all—to be credited with the faults of both and the virtues of neither. I shall begin by discussing views of the relation of values to knowledge.

The ordinary commonplace unreflective attitude to values is to regard them as qualities of objects, as belonging to objects in very much the same way as colour and shape belong to them. Commonsense has no theories about the matter, but it would, I suppose, take it as an accepted fact that the values which it distinguishes at all (and it is of course constantly experiencing value without being aware

that it is value) belong to the things which yield them. Without making fine distinctions between instrumental values and intrinsic values, unreflective commonsense conceives the value to be *in* the treasury notes or the land or the iron ore, as the beauty is *in* the picture. Certainly with regard to the tangible things which commonsense for the most part discerns as most clearly valuable, there is no idea at all that the value may be due to the presence of knowing mind. We know the values as we know the things, they are *there* in the things, ready to be known.

The smallest amount of reflection, however, will induce commonsense to halt and perhaps to recant its first naïve assumptions. There seems to be a difference between a thing's value or worth<sup>1</sup> and its colour or shape. Money in a napkin hidden in a field is not of real, but only of potential value. Its value becomes real only in use, in relation to the needs of human beings. So of the land or the iron ore. And beauty in its turn would seem to have little real value "in the desert air." It seems important, on second thoughts, that we enjoy beauty; the perfect gramophone playing the Fifth Symphony in the uninhabited wilderness seems to lack something (if we can think of it apart from ourselves surreptitiously listening in). And with this conviction borne in convincingly and suddenly upon commonsense, it may perhaps spring to the opposite extreme and argue that beauty is "in the mind," or, less correctly, "in the eye" or "ear." Or, with the aid of a little philosophic jargon, commonsense may learn to distinguish between the primary and secondary qualities, and values; and it may call values "tertiary qualities" taking the term tertiary to mean two removes away from reality, or, in other terms, purely mental.

But the more subjective position must not be assumed

<sup>1</sup> I take the terms here as identical in meaning.

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without question to be necessarily more "philosophic" than the view which takes values as entirely mind-independent. Dr. G. E. Moore in a well-known passage in his *Principia Ethica*<sup>2</sup> argues staunchly that values are entirely mind-independent. He says "Let us imagine one world exceedingly beautiful. Imagine it as beautiful as you can; put into it whatever on this earth you most desire—mountains, rivers, the sea, trees, sunsets, stars and moon. Imagine these all combined in the most exquisite proportions, so that no one thing jars against another, but each contributes to increase the beauty of the whole. And then imagine the ugliest world you can possibly conceive. Imagine it simply one heap of filth, containing everything that is most disgusting to us, for whatever reason, and the whole, as far as may be, without one redeeming feature. Such a pair of worlds we are entitled to compare. . . . The only thing we are not entitled to imagine is that any human being ever has, or ever, by any possibility, *can* live in either, can ever see and enjoy the beauty of the one or hate the foulness of the other. . . . Well, even so, supposing them quite apart from any possible contemplation of human beings; still, is it irrational to hold that it is better that the beautiful world should exist, than the one which is ugly? Would it not be well, in any case, to do what we could to produce it rather than the other? Certainly I cannot help thinking that it would." Again, discussing the arguments of Socrates in the *Philebus*, Moore says,<sup>3</sup> "If we are really going to maintain that pleasure alone is good as an end, we must maintain that it is good, whether we are conscious of it or not. We must declare it reasonable to take as our ideal (an unattainable ideal it may be) that we should be as happy as possible, even on condition that we never know and never can know that we are happy. . . ."

<sup>2</sup> *Principia Ethica*, pp. 83-4.

<sup>3</sup> *Ibid.*, p. 89.

I have quoted Moore's words in full because they express very clearly the point of view that values can exist apart altogether from minds. It is a view difficult to accept. As regards the actual argument of the former of the two cases, it has been pointed out before now that Moore begs the question by introducing his own consciousness into the matter. He says, to begin with, that we must not imagine that any human being ever has enjoyed or can enjoy the beauty of one world and hate the foulness of the other, and then he goes on to say that he himself would hold that the beautiful world ought to exist rather than the ugly. If, on the other hand, we take the content of the argument, we shall find it hard to conceive that beauty should be in the least valuable (apart altogether from the question whether it could even exist) without human minds to appreciate it. And so again of pleasure. We may agree that the pleasure which no one ever knew, that is, pleasure entirely apart from a conscious being, could not be the good or the ideal, but this is just because it could not be a value at all. It is no doubt not impossible that something valuable should happen without any mind being aware of it. But in order to be valuable it would have to be related to consciousness somehow, if only indirectly and ultimately. The processes of digestion which go on within our organisms are highly valuable, and, paradoxically enough, we do not normally realise how valuable they are until they begin to refuse to function. We are not, in health, conscious of digesting food. Yet the value which good digestion possesses is only of value in relation to a conscious living being and its higher functions. Again, a man may quite well be morally good without being aware that he is good. But the value of his goodness could not, so far as I can see, conceivably exist out of all relation to the functioning of his mind. Putting it quite generally, there seem in this connection to be

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two sorts of values, one sort of which (e. g. pleasure and perhaps beauty) cannot exist without someone's being to some degree aware of them, just because the *facts* (e. g. the very existence of pleasure and perhaps of beauty) imply the facts being experienced. The other sort (e. g. good digestion or good actions) may exist without direct consciousness or cognition of value just because the facts (good digestion or good actions) may exist without our being directly conscious of them. Nevertheless, whether known or not—and certainly most of the values of the greatest importance for human life do for the most part involve a high degree of consciousness—values are inconceivable out of all relation to mind in one or another of its aspects.

Our general view, then, so far, is that values are not objective in the sense of existing entirely out of relation to minds. But it is important to urge that this denial of the complete objectivity of value does not commit us to accepting subjectivism. If I say that it is good that I should speak the truth I do not mean that the goodness of truth-speaking is something which exists merely in my mind: nor do I mean that the goodness of truth-speaking arises merely through my cognising. When I say that truth-speaking is good, my judgment is objective in the sense that it claims to be a discovery of an objective state of affairs beyond my conscious cognition. In making the judgment I claim that the judgment is objective, and I am prepared to prove its truth in the only way that proof is possible, i. e., by showing it to be coherent with the body of knowledge. Truth-speaking is good because to speak the truth fits in best with the system of the purposes of human existence. So far as its relation to my cognising is concerned, the truth of the proposition "truth-speaking (by me or anyone else) is good" is as independent of my consciousness as is the truth of the proposition about the three angles of a triangle being to-

gether equal to two right angles. On the other hand, the avoidance of subjectivism does not imply the acceptance of what has already been rejected, i. e., the complete objectivity of values. To say that the value of truth-speaking is independent of cognition, is as independent of cognition as the fact that the three angles of a triangle are together equal to two right angles, is not to say that it is as independent of *mind*. It is at least arguable, and it is usually held, that the fact of the three angles of a triangle being together equal to two right angles exists apart from mind. But it is inconceivable that truth-speaking should be *good* absolutely apart from the existence of any minds who should express themselves in that way, and who should reap the benefit of truth-speaking. When I predicate that truth-speaking is independently good, I mean merely that good truth-speaking is in its being independent of *cognition* (though apprehended by it). Apart from this, values seem to be constituted—or at least partially conditioned—by minds and relationships between them. Objective conditions entirely apart from minds (e. g. natural conditions) may be the material, so to speak, out of which values are made, but apart from the active life of mind in relation to that material it is scarcely possible to conceive of them existing. The question how mind conditions value is one which we must discuss. For the moment let us examine briefly two other possible relationships which the apprehending mind might have to the object of value apprehended. We have seen that it is not purely *qua* known that value is dependent upon mind for its being. May it not be dependent *qua* desired or *qua* felt?

Let us first briefly examine the view that the value which we apprehend is constituted by some relation to desire. This view has been widely held in the history of philosophy; it is typical of Greek thought. Its best-known protagonist in recent times is perhaps Ehrenfels.<sup>4</sup> Ehrenfels defines

<sup>4</sup>In his *System der Wertheorie*.

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value as desirability, meaning by desirability not that which we ought to desire, but that which we actually do desire. The value of a thing is in proportion to the strength with which we desire it. The criticism of such a view which naturally arises is obvious and has been often stated. If desirability meant "worthy of being desired" the objections might fall, for in that case desire itself would not be the criterion, but worthiness to be desired, which is another matter. But if the meaning of the doctrine is that it is actual desire which determines worth, it is certainly not true. We desire things which we recognise to be unworthy. Worth of course might be defined as what the ideal man would desire, but this once more raises the conception of ideality, which is irreducible to terms of desire. The same arguments apply to the included notion that the value of an object is in *proportion* to the strength of desire. Experience shows that the more we desire an object, the more our conscience may tell us that it is unworthy.

The doctrine that value is a function of feeling, again, and that it is in proportion to the strength of feeling (also a familiar contention in the history of philosophy and held in his youth by Meinong<sup>5</sup>) can be dealt with in much the same way. Feeling may be, indeed it is, a very important factor in the full mature apprehension of value, but it is obvious that my actual feeling in relation to a thing does not determine its worth: *a fortiori*, the strength or intensity of my feeling does not determine the degree of worth.

Professor Urban, in criticising these two views, points out first that thought of worth may exist without the existence of desire. E. g., "When I think of an absent friend, I may feel his worth to me without the slightest trace of actual desire for his immediate presence, although the pre-supposition of that feeling is a disposition so to desire."<sup>6</sup>

<sup>5</sup> In his *Psychologische-ethische Untersuchungen zur Wertheorie*.

<sup>6</sup> *Valuation, its Nature and Laws*, p. 36.

Again, he thinks<sup>7</sup> that desire cannot be coextensive with valuation because there are fleeting desires which do not attain to the level of valuation,—perhaps a disputable point. On the other hand, desire is not, for Urban, coextensive with feeling, although he thinks feeling more important than desire. “There can be no sense of worth without a meaning which may properly be described as *felt* meaning, while there can very well be a sense of worth without that qualification which we describe as desire and volition—e. g. aesthetic and mystical states of repose where actual desire is in abeyance. More specifically, even in those experiences which we call explicit desire or volition, the essence of the desire can be equally well described in terms of feeling without doing violence to our speech. The essence of desire is the feeling of lack or want. We ‘feel’ the ‘need’ of something.”<sup>8</sup> Urban’s summary of the situation may be quoted with advantage:—“(1) Feeling of positive worth may exist side by side with unpleasant experiences and feeling of negative worth with pleasant. (2) Degree of worth feeling may increase with decrease of hedonic intensity, and there are numerous instances where worth feelings are practically intensity-less.”<sup>9</sup> Again there may be feeling of value with irrelevant hedonic accompaniments. There is for example in anger the feeling of negative worth which may be accompanied by pleasure: this pleasure however does not belong to the anger as such but to the organic disturbance pleasantly toned. Once again there are “the so-called intensity-less attitudes or acts of valuation and preference. . . . A quiet sense of obligation may reveal a degree of worth of an ideal object which the intensest passion or emotion does not suggest.”<sup>10</sup> And so on.

<sup>7</sup> *Ibid.*, p. 39.

<sup>8</sup> *Ibid.*, p. 38.

<sup>9</sup> *Ibid.*, p. 74.

<sup>10</sup> *Ibid.*, p. 75.

This is Urban's view. Whilst agreeing with it as far as it goes, I should like to consider further very briefly the place which feeling plays in making judgments of value. Thereafter, having discussed *valuation* and defended value's independence of valuation, we may go on to say a little about the genesis of *value*. For the moment, what part does feeling play in value-judgment?

Let us take the example of a moral judgment. Suppose I say that generosity has moral worth or value. In doing so I am offering a judgment upon an objective state of affairs which is (as we have argued) entirely beyond my present consciousness, although no doubt in judging and in approving of generosity the object becomes related to my consciousness. In this judgment of value two elements of consciousness, cognition and feeling, are prominent; conation or striving or desire is not so prominent and may be left out of consideration for the moment. In judging that generosity has worth, I am *cognising* generosity and predicating value of it. There is also present, I think we may say, *feeling*, at any rate in the *original* judgment of value. It is true that I may make the proposition "generosity is good" without much, if any, feeling. I may make it because I have heard someone else say so, or because I myself have come by now as a matter of course to regard it as having worth. But if I make the judgment, having direct, fresh, living acquaintance with generosity as an intrinsic value, then I make it feelingly. If I am to probe into the meaning of generosity as an intrinsic, actually realised value (and not merely as instrumental to some other end) I have to feel its value. There is always the disposition, as Urban says, to feel.

Feeling indeed plays a most important part in the genesis of the original moral judgment. Suppose that by peculiar circumstances I have never before been acquainted with gen-

erosity and then I am suddenly confronted with some overwhelmingly generous act. The most striking characteristic of my experience is that I *feel* its value (cognition of course is implied necessarily in every conscious experience), and it is my feeling which leads me to make the spontaneous judgment "how good" or "how fine." Note the phrase "feeling may lead me" to make the judgment: the judgment of value is not simply a feeling, but it is initiated by a feeling. Now however there enter the factors of intellect and reasoning. The original moral judgment "how fine" arises because of feeling, but its validity is not proved by feeling alone. It is one of the most familiar facts of experience that persons of moral immaturity pronounce things to be fine which riper moral insight would pronounce to be otherwise. Feeling in itself is not a certain criterion of validity. It must be supplemented by analytic reason and its canons, and in moral questions it is systematic moral philosophy which supplements intuitive insight and helps us to say with greater certainty what is of true value and what is of false. The moral man making an original judgment of value upon generosity pronounces it to be good because he seems to experience and "feel" the internal intrinsic "harmony" of generosity. His feeling possesses a pleasant tone, yet is more than merely pleasant, having a concrete<sup>11</sup> character all its own which we call "moral." The moral philosopher, on the other hand, supplements, corrects, and modifies his intuitive judgments by examining their relationships with the wider system of moral purposes in the world.

But even here the process is not complete. It returns to feeling. The moral sage *may* have thought and reasoned about moral questions for a lifetime, but he does not, if he

<sup>11</sup> The view that feeling has a concrete character involves considerations into which I cannot enter here. See my "Towards Realistic Psychology," *Journal of Philosophy*, XXI, No. 18, and "Knowledge and Feeling," *Psyche*, V, No. 2.

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is the true sage, stop there. He knows by experienced intuition the good, and not only this particular good or that, but *the Good of Life*. And, being wise, he is able to judge as much by his feelings of satisfaction as by his reasonings, and perhaps better so. Reasons and proofs are valuable and essential, but they may lead us astray, and intuitive wisdom which is the fruit of much reasoning may on occasions be better. So, in the end, feeling may be the test. It is the feeling of satisfaction, not in this or that thing, and not in an individual life only, but in a well-functioning life lived according to the best purposes of society and the wider cosmos. The feeling which comes with wisdom is often the best criterion of value which we possess, telling the enquirer whether the value is fleeting, insubstantial or self-destructive, or permanent and profound, coherent with the whole system of life's true purposes.

As regards feeling, then, though a thing has not moral value because it gives us a certain feeling, nevertheless the cause of our first immediate judgment that it has moral value is the fact that it gives us a certain feeling. There is not involved here the false proposition "this is good because it gives me a certain feeling," but only that the experiencing of feeling of a certain kind is in psychological fact immediately followed, in the case of the original moral judgment, by the judgment of value. This judgment must in turn be followed by critical intellectual analysis and synthesis, but this in its turn may be profitably complemented by the wiser feelings of the moral sage.

To sum up what has been said hitherto. We have argued that value is independent, as regards its existence, of the cognitive processes involved in its apprehension, and of our desires and feelings with regard to it, though desires and feelings (and particularly the latter) may be prominently involved. The mistake of Ehrenfels and Meinong seems to

be that they confuse the processes and accompaniments of our *valuation* with the constituents of the object of *value*. Urban corrects their mistakes by pointing out that values may vary independently of our mental processes, and thus disproves any point to point dependence. Values are, in fact, wholly independent of our valuations.

And yet, as we have said generally, values are not wholly independent of mind. What kind of relation, then, do they have to mind?

The relationship which values have (as regards their genesis) to mind must be a relationship of the whole mind, and it must be one which is entirely distinct from the process of valuation or valuing. It must be an activity of the whole mind because there is never in psychology any definite evidence that anything less than the whole mind is involved. We do not know simply, or feel simply or act simply, but knowing and feeling and acting are always involved together. So that although one or another of these aspects may be stressed in the process of mind which we are about to discuss, the differentia of the process cannot be the exclusive presence of one or another of these aspects. As we cannot for example say that valuation is merely a process of cognition (exclusive of other factors) so neither can we say that the process of mind which determines the existence of value is, say, merely a process of activity (exclusive of other factors). And if this is true, if the apprehension of values cannot be put down (e. g.) to pure abstract cognition and the determination of their existence to pure abstract activity, then it is all the more necessary that the two distinct psychological moments of the *whole* mind should be discovered, one conditioning the existence of value and the other knowing it. I do not suggest that in psychological fact these distinct processes are always separate or separ-

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able. But as the nature of value does seem to compel us to suppose that mind plays a part in conditioning the existence of values, and as it is not the mind as *valuing* which does this, we are led to make the hypothesis of a distinct process in all cases.

This complete mental activity of which we are in search is one in which, though it implies cognition and feeling, the life of action seems to play the most prominent part. Very roughly and very broadly we may say that it is through the active developing life of mind (and body)<sup>12</sup> working out its destiny and salvation in contact with an obstinate world of hard fact, that values come into existence. Values arise through the meeting of life, mind and spirit with 'dead' nature. In our mind by itself—if mind by itself is conceivable—there are no values. In dead nature<sup>13</sup> by itself there are no values. Mind does not make the values out of its own stuff and project them on to reality, as has sometimes been thought. It is only through the active objective life of discovery, trial and error, experiment, expression, creation, that values begin to appear. Values are like the sparks which fly out when flint strikes steel, or the flame which appears when we strike the match upon the matchbox. The spark or the flame is not there beforehand either in the agent or in the object; it comes into existence through an active process on the part of the agent on the object. If we keep the useful analogy before us we shall not be inclined to say that mind creates value, if by creation is meant a process which produces out of nothing, nor on the other hand shall we be inclined to say that mind (in the process with which we are *now* concerned) discovers value ready

<sup>12</sup> These must be taken together always. In the genesis of some values the body is of special importance. For the sake of avoiding pedantry I shall not add the 'and body' each time.

<sup>13</sup> Or what, for all practical purposes, *seems* dead nature. I use the term in order to exclude animal life, for there is no reason to suppose that animals do not realize value. They certainly behave as if they do. But here we are concerned only with human values.

made in the non-mental mind-independent world. Rather may we say the values are *struck*. It is of course true, on the other hand, that mind does make values by its willed activity, by the changes in the world which it initiates and without which values could not exist. It lies with us whether particular values shall or shall not be; it is we, not nature, who have the initiative. In a sense we do create values, but (as was said) out of a material which we do not make. We do not create out of nothing, and if creation meant this—as it need not—the term would have to be avoided. We create in the sense that by our agency we bring to existence value which was not there before. The sculptor, the painter, the musician and the poet all do bring into existence by their willed activity new values. And again, although so far as the process of mind which we are now discussing (i. e. the process of conditioning) is concerned, we do not discover, there is another process of mind in which we do, i. e., the process of valuation. The process of generation cannot, *in itself*, be a discovery, but we may discover in, through, and after, generating. Mind in one aspect conditions and even creates value (though always out of its active contact with an independent world) and in another aspect it discovers what it conditions or creates.

This general conception might be worked out and applied to the different values, but I do not propose to do this at any length here.<sup>14</sup> The value of beauty<sup>15</sup> seems to be generated somewhat as follows. In apprehending the beautiful object (say a work of art) we are apprehending an independent object and the beauty seems at first sight to reside in the object. Yet much more than this is involved. Through a complicated process of association which, in

<sup>14</sup> I have recently worked out to some extent the case of beauty. *Proc. Arist. Soc.*, 1925-6, No. 2. See also *Hind*, April, 1926.

<sup>15</sup> Note that beauty is not a value, but a valuable thing, a thing possessing value. Values are always adjectives of concrete things or processes.

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proper aesthetic perception, becomes merged and fused into the present experience, the parts of the beautiful thing come to possess a symbolic significance. We do not think of them as meaning something other than themselves, as pointing away from themselves, but they are, unconsciously or subconsciously, charged with rich meaning which comes from the whole history of human experience. The shapes and colours and sounds and their symbolic meanings are however not a mere isolated heap of entities. They are formed in a work of art, into a unity, and this unity is the special characteristic of the art object. Through the aesthetic object human experience is focussed into a unity and perfection which at ordinary levels it does not possess. In looking at the aesthetic object we are experiencing value, in the first place through the present flavouring of experience by association with previous value-experiences, and in the second place, through the integration (and at the same time radical modification and selection) of these into a perfect wholeness and a new meaning. It is through an active process of mind-and-body that beauty becomes generated, but it is a process of which in aesthetic contemplation itself we are not conscious. Once given the product (i. e. beauty) of the mind active in this way, we may be truly said to discover it. The mind by an active synthetic process of experience (always working in closest touch with a world which is distinct from it) conditions and even creates beauty. Given the created beauty it then knows it and values it, and this process is distinct from the process of its genesis.

The sphere of the moral life yields perhaps the most fruitful illustrations of the way in which value becomes generated through the active life of endeavor which is lived in a hard and obstinate world, where adaptation is necessary to fit us not only for physical but for moral survival. Moral values are not discovered ready-made, to be

enjoyed and manipulated by a mind which has no part in their genesis. Moral values have gradually been developed in the hard struggle for adaptation and mastery of the environment. The environment is both natural and social. The virtues, e. g. those of courage, temperance, perseverance, were developed out of the sheer necessity to adapt in order to survive. Lack of them would have meant extinction. But having been generated in this way, they were discovered to be noble and worthy in and for themselves, to have a dignity of their own. "Social" virtues such as loyalty, self-sacrifice, justice, similarly arose out of necessity, and similarly were discovered to reveal the quality which we call moral value. Through the very shutting perforce of his eyes to what seemed most dear to him, his own ease, his own pleasure, his own life (the values of which in turn arose out of his natural active life in reaction to his environment), through lowering his head, so to speak, and plunging out through the arctic blizzards of existence, man has discovered to his delight, queerly, the worth of it all. It is the truth to which all the moral paradoxes have testified. To gain happiness, forget it and seek objective interests; to save your life or your soul, throw it away and lose it; to become rich, throw away your riches. Moral values arise through active moral virtues and moral virtues are always in the first instance a denial of what seems immediately good. Otherwise "ought" would have no meaning. At the lower stages of morality the necessity which forces itself upon the individual, comes, as we have said, of the natural and social demands necessary for survival. At the higher stages the same thing may happen (as when men have found their souls in acts of self-sacrifice such as occurred in the late War) or new values may arise through the moral beckoning of values which are known, but only very vaguely and dimly so, through a

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kind of intuition born of previous discoveries of values in analogous ways. We know from experience *that* it is worth while to devote ourselves to a noble and worthy cause even although the cause may make at the moment but little appeal. And we know what are likely to be noble causes from our general moral experiences of noble causes in the past. We may not realise fully here and now the nobility of the cause, but moral experience commands us to generate a real value by going ahead and acting, if necessary without much inspiration. The value may be made simply by going and doing what needs to be done because it ought to be done. Morality need not begin in sentiment and its values arise through plunging directly into the life of action.

The same, generally speaking, is true of the values of knowledge, of artistic endeavour, and of the commoner instrumental values which we call the "good things" of life. We seek knowledge because it is necessary in the first place, and it is necessary not because it gives us pleasure but because we must have it in order to survive. And if in civilised life the finding of truth does give us pleasure and becomes a value in itself, it is only found to be so after a long process of hard and often very weary seeking. Short cuts to pleasure *via* knowledge are unsatisfying except to the shallowminded. The true scientist and the true philosopher have perforce to forget the pleasurable value of truth-seeking for the greater part of their lives, and only at rare moments is the delight of discovery enjoyed for its own sake. So, again, the artist no doubt gets joy out of his creation, but his making is a labour: there is pain and dissatisfaction and irritation, and it can never be argued with success that there is more pleasure than pain in it, and that it is done primarily from any motive but a more or less blind urge from within. The artist struggles and

battles with his dead material and out of his struggles the value of beauty emerges. So again of the lesser values of life. The discovery of the value of exercise arises from exercising. The experience of the values of food, drink, recreation, amusement, all arise out of active animal and human functioning. Value is not originally sought as the end, and value for the greater part is not known or realised until it is made and generated through action. I need not stop to repeat again that the processes, though distinct, are not always separate. The acting which generates *is* not the discovery, but we may discover through acting. Sometimes the generative action is unconscious or subconscious, as it seems to be in the case of beauty, sometimes it is more or less conscious, as with morality. But however this be, mind conditions what it discovers, and, without the action of mind, that which it discovers (namely values) could not be. What *is before* mind in time is the independent world, and through the interaction with this world value comes into being.

This seems to give us some hint of the solution of the problem of the relation between value and existence. The question is one which has received some discussion. We may begin by agreeing with Professor Sorley<sup>16</sup> that when we make a judgment of value it is always predicated on the assumption or under the hypothesis of existence. And we may go on to quote Professor Urban, who distinguishes between three cognitive attitudes towards reality, first, presumption, second, assumption, third, judgment. By presumption he means, we may suppose, the implicit taking for granted of reality which is similar to what Bosanquet calls "the continuous affirmation of waking consciousness."<sup>17</sup> It is the most primitive attitude, that of the child which takes

<sup>16</sup> *Moral Values and the Idea of God*, p. 83

<sup>17</sup> *Essentials of Logic*, p. 33 sqq.

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things for granted without knowing it. Of assumption, Urban says, "Assumption, as a cognitive attitude, has two meanings. According to its first meaning it is an acceptance, a taking as existing, of an object when there is an underlying sense of the possibility of its being non-existent. In this sense it is a half-way stage between the primitive presumption of reality and the existential judgment. . . . In its second meaning it is not prejudgmental but post-judgmental, that is, a permanent assumption is created by habitual judgment; it presupposes dispositions created by acts of judgment and is derived from the judgment attitude. In this case the assumption approaches closely to the presumption, and for this attitude the two terms are often used interchangeably."<sup>18</sup> Accepting these useful distinctions we may agree with Urban that value-judgment always presupposes either presumption or assumption, or else is an existential judgment of reality. When we say that justice is good we do not mean that the mere concept justice is good, but that justice assumed as existing is good. Always there is the hypothesis of reality.

But our question is, How is value related to existence and reality? We have seen that, when we make a value-judgment, the subject of the judgment is supposed to exist and is not a mere concept, but what we now have to ask afresh is whether the ground of a thing's worth is its existence. And it may be assumed from the foregoing, that our answer must be in the negative. Professor Sorley argues very strongly in the same sense: he urges that, although in order to have value the thing must exist, the ground of its value must lie in something else than its existence. He says,<sup>19</sup> "If a reason can be found for saying that a thing is good, then this reason must lie in some quality or relation

<sup>18</sup> *Valuation*, p. 48.

<sup>19</sup> *Moral Values and the Idea of God*, pp. 85-86.

of the thing; it cannot be due to its mere existence, for otherwise the distinction between good and evil would disappear." This, we must agree, is true, and we may add once again that the nature of value is that it resides not in existence as such, but arises out of the active relation of minds to existing things.

A question of terminology then arises, and it has rather more than mere verbal importance. If value does not reside in existence, or in existing things in themselves, where does it reside? The answer seems to be, *primarily* in the relation between active minds and things, and *ultimately* in reality. In ultimate philosophy it seems best to use the wider, richer, and more inclusive term "reality" as the subject of values. The active, knowing, feeling mind, and existing objects, and the interaction between them, and its value, all fall within reality. Reality contains and yields values. It is through the structure of reality that values are possible at all.

And, it may be added, just as the subjective criterion of the importance and reality of values is the knowledge of, and the feeling of satisfaction in, external and internal coherence, so, objectively, are values significant to the extent to which they reveal, through the activity of minds, the profoundest and fullest and widest significance of the Real. Value is not identical (as is sometimes argued) with coherence and system and harmony. To say that it is, is to give too abstract an account and to do less than justice to the living finite minds which make its actual realisation possible. Values are adjectives, not simply of the Real, but of real finite relationships between minds and their environment. Partaking of the flesh and blood and spirit of these real active objective experiences, they are themselves real, as real as anything could be. They are concrete terms, and not mere relations, as such abstract words as "coherence"

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applied to them would suggest. But they are terms in relation, and their full significance can never be judged apart from their relation to a whole life, and in the end, to a whole Reality.

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## THE RELIGIOUS RELEVANCY OF RECENT REALISM

THE religionist of the past was repeatedly alarmed because the special sciences, the children of philosophy, were beginning to leave their maternal home. He feared that the philosophical mother, with her offspring departed for the land of science, would not long be able to maintain the old homestead. The religionist of the present has cause for still graver concern. For to-day philosophy herself is following her children into the territory of facts. The sole remaining member in the ancient household is mystical and metaphysical grandma, who idly sits in her arm-chair, contemplating the past and darning up the gaps in the garments of her grandchildren. Once in a while there is a family reunion, but, with the exception of the aged grandmother to whom the event is a real affair, all concerned regard the gathering as a frolic, significant as a past-time, but totally irrelevant to the serious business of life.

The standpoint in contemporary thought which makes the religionist solicitous that recent philosophy is abandoning the way of her ancestors is new realism. New realism repudiates with vigor all that smacks of the metaphysical or *a priori*. To the new realist, there is only one way of knowing, whether the objective to be known is

matter or mind, fact or value. The way is scientific analysis. Realistic theory stands for "the substitution of piecemeal, detailed and verifiable results for large, untested generalities recommended only by certain appeals to the imagination.."<sup>1</sup>

To the realistic thinker, all the perennial controversies of philosophy have occurred because philosophers have sought metaphysical universality instead of mathematical simplicity. The traditional philosophies are indicative that, historically, thinkers have been more influenced by the dictates of temperament than by the desire for truth. Philosophical success will only be possible, believes the exponent of new realism, when philosophers cease to regard esthetic contemplation, mystical intuition and moralistic aspiration as legitimate methods of understanding reality. The philosopher must interpret the world as it actually is, and not as he, in speculation, would like it to be.

The new realist whole-heartedly accepts both of the fundamental tenets of current scientific theory, namely, empiricism and evolutionism. The two other main philosophies of to-day are less radical. Idealism endorses empiricism, especially as the standpoint refers to the data of the social and historical sciences, but evolutionism is hardly vindicated in idealistic doctrine. Pragmatism, on the other hand, espouses ardently the idea of evolution, but the pragmatist places too much confidence in creative hypothesis as a way to truth to be enthusiastically empirical. The new realist believes that his mathematical logic, with its justification of independence in epistemology and emergence in cosmology, permits him to be empiricist and evolutionist both, in his reaction to reality.

This interpretation of philosophical inquiry is, of course, quite different from that of the religionist. For, to the

<sup>1</sup> Bertrand Russell, *Scientific Method in Philosophy*, p. 14.

devotee of religion, romanticism is necessary for insight into the fundamental nature of the real. Emotional appreciation, no less than empirical analysis, is requisite for a thorough acquaintance with the truth of the world. There are two kinds of rejoinders which the religious interpreter of reality can make to the realistic standpoint. In the first place, he may criticize the foundations of the new realist's procedure. He may examine the validity of the mathematical and pluralistic logic upon which the new realist's confidence in scientific analysis is grounded. In the second place, he may inspect realistic philosophy to see whether or not the new realist himself avoids the speculative tendencies he finds so deplorable in theories of the past. The present paper is a discussion of this second type of reaction. The writer would show that the new realist, his polemic against sentiment notwithstanding, is vitally concerned with interests dear to the metaphysician. Our desire is not to show the inadequacy of a purely scientific theory, so much as it is an intention to demonstrate the ubiquity of religious notions in philosophical thought. Old axiological grandma may not be out in the world of physical activity, but her influence is felt there just the same.

New realism, we believe, in spite of its professed empiricism and evolutionism, manifests a speculative bias in its theories of knowledge and nature. We shall indicate first how realistic epistemology betrays in its exponents the motives of mystical metaphysics.

The epistemological theory of new realism is called neutral monism. Experience is regarded as a single phenomenon, possessing the neutrality of being interpretable from the standpoint of either matter or mind. In stuff, experience is neither physical nor mental. Its character as material or psychical depends, not upon its inherent

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nature, but upon the relations which it bears to other entities of the universe. If it is considered as independent of the knowing agent, as in physics, we have the interpretation of experience traditionally regarded in terms of matter. If experience is considered in its connection to a knowing being, as in psychology, we have the new realist's explanation of the reality historically called mind. Fundamentally, the substance of one is the same as that of the other, for both, ultimately, are logical, or mathematical, in nature. The name, double aspect theory, is sometimes given to this interpretation of experience.

The nature of neutral monism may be indicated further by defining the two concepts which may be regarded as constituent notions of the theory, namely, independence and immanence. The former represents the thesis that objects of knowledge depend not at all for their being upon being known. The idea of independence is significant of the new realist's denial of the validity of the ego-centric predicament. All the new realists are exponents of independence in the case of sense-perception, but the concept does not receive universal support when it is applied to memory images, illusions, volitions and values.

The second constituent concept of new realism, immanence, refers to the notion that when an object is perceived the object itself, and not an idea of it, enters into the perceptual relationship. Since, according to this doctrine, the object known and the content of knowledge are one and the same, the conception is often called the identity theory. All the new realists are in accord with regard to the notion that objects themselves, and not copies of them, are directly perceived, but there is disagreement with respect to the status of consciousness itself. The English new realists are willing to reduce the content of mind to identity with the object, but are insistent that this despoiling of

mind as content should not be considered as destructive of mind as activity. G. E. Moore holds that, however objective the content of mind may be, its functional aspect is subjective and psychological. This mental phase of experience he designates awareness.<sup>1</sup> In the phenomenon, enjoyment, S. Alexander finds a factor in experience that is peculiarly private and personal.<sup>2</sup> Moore admits, however, that the conscious element of awareness is empty and diaphanous, and Alexander is never unequivocally positive that psychosis is not a form of neurosis. The American new realists have an even more radically objectivistic point of view. All of them eliminate mind as either act or content in perception, and some of them treat consciousness as a mere relation in complex knowledge situations. E. B. Holt and R. B. Perry both regard any content, which one mind may have, as open to observation by other minds, and both treat the activity of mind as the movement of a physiological organism. In the theories of Bertrand Russell of England and of E. G. Spaulding of America an attempt is made to find a place for both the introspectionistic and behavioristic standpoints. Both of these new realists vigorously deny, however, that the psychological is, in any sense, constitutive of the physical.

It must be readily acknowledged that the epistemology of new realism is the most scientific theory of knowledge which has yet appeared in philosophy. It does represent a serious effort to examine mind with the same empirical methods which have historically been used in the investigation of matter. Nevertheless, the doctrine contains features reminiscent of traditional speculative procedure. Let us notice some of the respects in which realistic epistemology is more suggestive of mysticism than of mathematics.

<sup>1</sup> *Mind*, N. S., XII, p. 449 and ff.

<sup>2</sup> *Space, Time and Deity*, Vol. II, pp. 11, 12.

In the first place, the new realist, like the traditionalist, treats logic as the goal, rather than the guide of philosophy. Like the formalists and intellectualists of the past, he makes life conform to logic, instead of treating logic as an interpretation of life. Traditionally, philosophers have been wont to disregard contradictions and change in order to erect philosophies conformable to the logical ideal of a perfect universal. The new realist is prone to neglect consistency and continuity in his zeal for a logic which exalts pluralistic simples. The motive of the new realist, like that of the traditionalist, is the desire to explain the given actualities of the world in terms of some speculative and conceptual norm. The aim is certainly not one with which a religious philosopher could find much fault.

The new realist's solution of the ego-centric predicament is an instance in which an abstract form is considered more authoritative than an actual fact. The new realists, in their joy at being able to analyze *in situ* the act and content aspects of mind, forget that *in actu* there may be no discreteness in consciousness. If empirical evidence is to be trusted, it seems probable that, in reality, experience is a unity. The bifurcation of consciousness into two features, in order to show the independence of one from the other, is a methodological device. To make it indicative of an actual state of affairs is to grant pluralistic logic a legislative and constitutive function, which, according to a scientific interpretation of logical theory, it has no right to possess. The mathematical realist of the present, like the metaphysical realist of the past, divides, in his epistemology, what for common sense is one, and then hypostatizes the distinctions made.

When new realism is carried to its logical conclusion it must declare error to be as non-mental as an entity of

physics. Some of the new realists guarantee this objectivity to error by placing it in the realm of subsistence, where as a purely logical being it cannot be regarded as the product of mind or matter. This procedure deprives error of either psychological or physiological subjectivity, but unfortunately it places error in a realm where it cannot be eradicated. Error becomes a feature of ultimate reality, and the new realist, despite his polemics against absolutism as a philosophy postulating necessary falsity, becomes himself a defender of error as inevitable. Making error ontological is, in motive, not unlike the traditional religionist's practice of giving evil cosmical import. To W. H. Sheldon, the new realist, in consigning error to the class of subsistents, is guilty of the fallacy of the faculty psychologist who is often able to interpret only by invoking the occult thing called Reason.<sup>1</sup> In the opinion of A. O. Lovejoy the attempt to explain hallucinations objectively by employing the notion of subsistents is "primitive spiritism."<sup>2</sup>

In endorsing the behavioristic theory of human conduct, the new realist favors a doctrine with metaphysical implications. The metaphysical character of behaviorism is disclosed in the behaviorist's conception of the psychological stimulus. The stimulus of reaction in behavioristic psychology is not the limited determining factor it is in physiology. For the behaviorist, the stimulus includes, besides biological features, all the past conditions in an individual's personal and social history. More fundamental still, to the behaviorist, are the physical implications of the stimulus. In the last analysis, according to behavioristic psychology, the cause and director of human activity is the realm of nature itself. In accepting, as he

<sup>1</sup> *The Strife of Systems and Productive Duality*, p. 203.

<sup>2</sup> *The Journal of Philosophy*, VIII, p. 598.



does, the general validity of the conservation of energy theory, the behaviorist must hold that every electron-proton change in any particular aggregate redistributes the strains in the universe as a whole. In other words, he is obliged to maintain, as we have tried to show in another connection,<sup>1</sup> that everything in the world makes a difference to everything else, a principle precious to mystical philosophers and to all who, contrary to the pluralistic procedure of science, would explain the part by the whole.

The new realist analyzes further than the behaviorist, to be sure, and the realm of subsistents, rather than the level of electrons and protons, is his ultimate sphere. The motive of the realistic thinker, however, is the same as that of the behaviorist. In interpreting mind as an adaptation to the environment, or as a portion of the environment selected by the nervous system, or as an entity generated from basic logical elements, the new realist, no less than the behaviorist, strikingly exhibits what Bertrand Russell disparagingly calls "the system-maker's vanity."

Not only in his interpretation of the stimulating situation, but also in his conception of the reacting agent the new realist has a theory significant of metaphysical interest. The new realist, like the philosophical religionist, would show that the responding self is, in some sense at least, free. In other words, the new realist does believe that in personality there is a factor that cannot be entirely reduced to physiological or physical terms.

S. Alexander develops the idea of freedom in his notion of enjoyed determination. For Alexander, "Freedom does not mean ignorance of the real causes of action. On the contrary it means awareness of them. . . . Freedom of the will always involves purpose, but purpose, though essential to willing, is not essential to its freedom,

<sup>1</sup> *The Journal of Religion*, IV, p. 349 and ff.

that is, it does not define its freedom. . . . Freedom in general is the experience which each thing has of its own nature."<sup>1</sup> We contemplate the levels of existence below us, that is, we observe them to be interpretable completely in terms of objective science, but we enjoy the realm which we ourselves represent, that is, we are aware of a novel subjective sphere not accessible to scientific investigation. According to Alexander, freedom is not the prerogative of man alone. It is the privilege of any level in the evolution of reality with respect to the stages below it. This conception of freedom will not satisfy the man who wants the self to be a creative and controlling force in the on-going of the universe. It will please one, however, to whom freedom simply means uniqueness and novelty.

E. G. Spaulding finds grounds for the belief in the freedom of the self in the logical principle that a whole is more than the sum of its parts. Unique reality is vouchsafed for selfhood by the principle that, although the constituent parts of personality may come and go, the organization representative of personality remains. In its relationship to its physical, biological and psychological components personality is a new and transcendent quality. As an entity over and above its material and mechanical constituents it has laws to itself alone.<sup>1</sup> Spaulding's theory of human freedom is an aspect of his cosmical doctrine of creative synthesis, which depicts reality as evolving by increasingly richer levels each of which is free from the specific exactions of the other levels. In Spaulding's conception, however, as in Alexander's, the freedom of man is more apparent than real. For even though, in the theory of Spaulding, the entities of the psychological human level are productive of the esthetic, ethical and theo-

<sup>1</sup> *Space, Time and Deity*, Vol. II, pp. 331-333.

<sup>2</sup> *The New Rationalism*, p. 449.

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logical realities higher than man, man, after all, must be considered as determined by the physiological and physical factors below and before him. The religionist will approve the realistic contention that the human realm is different from the sub-human, but he will not assent to the implication of the new realist's position that the determinants of the human are to be found exclusively in levels less qualified than the human.

R. B. Perry and E. B. Holt find freedom in selfhood in the fact that different individuals have different biological interests. Volitions of various men are different because their physical organisms are not alike. Man has purposes, and if he fulfills his purposes he is free. This interpretation will satisfy the demand of the religious thinker that the self be proficient in practical activity. It will not satisfy the religious requirement, however, that the self be effective in theoretical behavior. Because, according to Perry and Holt, the purposes, which impel personality, are not the result of creative reflection, but of mechanical, biological inheritance.

So much for the metaphysical notions which arise in the new realist's consideration of the object and subject of knowledge. Let us now notice his theory of nature to show that, as ontologist and cosmologist, the new realist presents conceptions in which a religionist might find much to favor.

According to his platform, the new realist has only contempt for the concepts of substance and cause. Their presence in theories of nature are significant, thinks the new realist, of thought-destroying sentiment. The new realist, however, lives in the same world as the traditional philosopher, and no amount of disdain for these concepts can free him from facing the problems which they have historically represented. The problem of substance em-

braces the ontological question regarding the permanent in reality, and the problem of cause comprises the cosmological question regarding the evolution of reality.

In spite of his hostility to the concept of substance, the new realist is manifestly an ontologist. His passion to reach the ultimates of reality and his zeal to learn whether the ultimate is one or many betray his intense ontological interest. The new realist's theory of ontology is expressed in his doctrine of neutral entities. As we have already intimated in discussing realistic epistemology, ultimate reality, as revealed by analysis, consists of simples that are in themselves neither matter nor mind. The only property which neutral entities possess is the one which even analysis cannot reduce, namely, being, pure being, or is-ness. Not in psychology, nor even in physics, but in logic, mathematical logic, is the true interpretation of reality to be found. The fundamental realm of being is a pluralistic sphere of externally related terms and relations. The new realist, however, is singularistic enough in his logic to grant that propositions may also be considered basic. At least, the proposition that there are terms and relations is regarded as legitimately ultimate.

To consider everything in reality to have logical foundation is a point of view with which the religiously minded thinker may have a great deal of sympathy. It means that the objectives of faith and hope are fundamentally as valid as the interests of sense and reflection. As W. H. Sheldon remarks, the search for logical ultimates reveals the "tenderminded," semi-religious desire for peace, rest and security.<sup>1</sup> Helen Huss Parkhurst also points out that the postulation of unitary, integral, essential wholes is indicative of a compelling force which is one of feeling rather than reason. "The notion of a universe of closed, self-

<sup>1</sup> *The Strife of Systems and Productive Duality*, p. 224.

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contained, autonomous entities, impervious to change and destruction, such as the realist provides for himself, is," in the judgment of Miss Parkhurst, "one of the emotionally most comforting notions that is producible by metaphysics."<sup>1</sup> That at least some new realists assume a mystical attitude towards ontological neutral entities is manifest in the contention of G. E. Moore that the essence of value is its simple and undefinable quality,<sup>2</sup> and in the opinion of Bertrand Russell that "to abandon the struggle for private happiness, to expel all eagerness of temporary desire, to burn with passion for eternal things" is "the free man's worship."<sup>3</sup>

Because of his conviction that the being of values lies in their subsistential status, the new realist denies legitimacy to the axiological conceptions of both present idealistic and pragmatic philosophers. He denounces the idealist's principle that values must be valued by the cosmos to be valuable to man, and he decries the pragmatist's proposition that values must be valued by man to be valuable to the cosmos. With the exception of S. Alexander and R. B. Perry, who allow human interest some constitutive power in the field of axiology, the new realists give universal scope to their solution of the ego-centric predicament, and declare that values, as well as cognitions, are not the product of personal or psychological forces. This point of view will satisfy the religionist who can be content to know simply *that* values are. It is too formalistic, however, to please a religious philosopher who would also like to know *what* values are.

In other words, it is not enough, from the standpoint of religion, for logical entities, especially if they are values, to be simply independent and intrinsic. They must

<sup>1</sup> *Recent Logical Realism*, p. 42.

<sup>2</sup> See *Principia Ethica*, Sections 5-22, and *Ethics*, Chapter VII.

<sup>3</sup> *Mysticism and Logic*, p. 55.

be immanent and influential as well. A philosophy which would interpret the actual world must account for the progressive as well as the permanent character of reality. Metaphysics must embrace cosmological as well as ontological considerations. The new realist accepts the challenge of metaphysics to be cosmological, but does so, we believe, by presenting notions which his analytical logic hardly justify.

To explain evolution the new realist endows his logical ultimates with a positive and prolific character which analysis never reveals as present. S. Alexander grants motion to the supposedly quality-less Space-Time; E. B. Holt ascribes generative power to his unqualified neutral stuff; and E. G. Spaulding permits some of his subsistential elements to possess relating capacity. It is amazing how the new realist can at one time ridicule the metaphysical notion of causality, and at another time present a cosmological theory of emergent evolution in which the higher levels of being, as concrete life, mind and deity, are declared to be the derivatives of simple, mathematical concepts. The ultimates of new realism are too abstract and thin to constitute a rich and full reality without interpreting them equivocally as possessed of causal potentiality, which, according to the new realist's anti-causal logic, they should not contain. The new realists are in a dilemma in their cosmological theory. Either the Space-Time of Alexander, the organizing relations of Spaulding and the generating propositions of Holt are completely analyzable or they are not. If they are reducible to mere being, then emergence is miraculous and the new realist's contention that intellectualistic logic can explain evolution is invalidated; if they represent features irreducible, new realism as a doctrine of reform, as a theory to demonstrate the complete efficiency of analysis, is not vindicated. The

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new realists are either mechanists and their theory is naturalism with a different title, or they are teleologists in the sense of accounting for novelties by a vital principle and are, therefore, idealists in all but name.

The religious implication of the cosmological theory of emergence is disclosed in the new realist's enthusiastic acceptance of the axiological concept of progress. In every way and on every day the world of the new realist, like the patient of Coué, grows better. For S. Alexander, E. G. Spaulding and E. B. Holt especially, the cosmos is a development towards perfection, and perfection is an infinite limit always ahead of the *nisus*. In the terminology of Alexander, the world is "an eternal straining after deity." With the exception of Bertrand Russell, who suggests that ultimately reality is a "universe of ruins," all the new realists who present cosmological theories at all take the position that values enter somehow or other into things to guarantee a world that will increasingly become beautiful, good and true.

This optimism of the new realist is not a standpoint significant of impersonalistic science. The notion is one which, from the point of view of facts, cannot be proved. It is doubtful even whether the concept is applicable to the world as a whole. Bernard Bosanquet asserts that universal progress "might be disputed from a modern standpoint on the sole and unique ground that there can be no system of reference from which it can be judged, no intellectual as no physical  $\pi\omicron\upsilon\ \sigma\tau\tilde{\omega}$ ."<sup>1</sup> A. Seth Pringle-Pattison also maintains "that progress is predicable only of the part which can interact with other parts, and, in such interaction, has the nature of the whole to draw upon. It is unintelligible as applied to the whole, and the temporal view of things cannot therefore be ultimate."<sup>2</sup> When

<sup>1</sup> *The Meeting of Extremes in Contemporary Philosophy*, p. 194.

<sup>2</sup> *The Idea of God in the Light of Recent Philosophy*, p. 383.

one's attention is called to the fact that there is no empirical evidence for the new realist's notion of infinite progress, one cannot refrain from surmising that the realistic philosopher, like his optimistic friend, the idealist, is not immune from religious speculation.

In conclusion, we would express the hope that our discussion has not suggested that new realism is a futile philosophy. Its superiority to mystical theory in dealing with the factual and material is readily granted. We acknowledge, after Bergson, that abstract and logical intellectualism, which new realism represents, is the standpoint supreme for comprehending the sphere of mechanism. Our only interest has been to indicate that, to arrive at a doctrine which is truly realistic, intuitive aspiration, as well as inductive analysis, must have a place. For life, after all, is larger than logic, and universals that are conceptual cannot fully portray a universe that is concrete.

We have no quarrel with philosophy, the mother of the sciences, for leaving the house of her fathers for the realm of empirical endeavor, but we trust that she will always remember that, "Be it ever so humble, there is no place like home."

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## MATHEMATICAL REALITY

THE mathematician often meets the question: What do you mean when you say that there are imaginary circular points at infinity, or when you talk about a space of four or even more dimensions, or many other similar notions used in mathematics? In what sense is there any reality to these things? Are they not mere ideas that you are able to invent but which after all one cannot meet in the real world? You discuss curved Einstein spaces but when you walk the streets with the rest of us you behave just as we behave. What is the meaning of the phrase: existence of Einstein space?

The question is a fair one, and the mathematician should meet it candidly. Some do not, but on the contrary endeavor to evade it completely by admitting that the most of mathematics is purely postulational, built, for instance, on the idea of the integer, and that these four-dimensional worlds are merely convenient phrasings of the problems of four variables, and that no idea of extent should be attached to them. We are supposed by such apologists to be dealing with the Philosophy of the "IF—THEN." Others attempt a half-hearted explanation in terms of psychology and physiology, by asserting that we are so constructed that we are not capable of appreciating directly the existence of these

imaginary worlds, any more than we can receive directly sensations from the radio waves.

But these are shallow answers and do not go to the bottom of the question. We discover by some clear thinking—as recommended by Descartes—that we have many mathematical ideas that are not expressible in terms of integers alone. We discover that the objects of thought which are unique, perfectly definite, and as precise in any sense as the idea of integer, are very numerous. We do mathematical thinking about these objects, these ideal constructions, and it is in no sense dependent upon the thinking about or with integers. We discover further that most of what we think we have derived through sense-data, is an elaboration upon sense-data, by processes which are not in the sense-data. Just as when we look at a moving picture what we actually see is a succession of stationary views interspersed with a succession of dark views, but what we make out of this by our own activity is a continuous picture of moving persons and objects, a synthetic whole, which is really very different from the physical facts. So with all sense-experience when it passes through the facile fingers of the mind. It is wonderfully transformed into a synthetic whole, even as a musician transforms a series of sounds into a marvelous symphony. And the "IF—THEN" philosophy does not cover mathematical results very well, for most of them belong to the "AND—THEN" philosophy. For a careful scrutiny of the so-called hypothetical reasoning in mathematics will lead one to see that the postulates are for the most part definitions of that about which we expect to say something. We actually create a mathematical entity and then proceed to describe it and its properties in much the same way that a chemist synthesises a new compound and then finds out what he can about it.

We come back then to the question: What is Mathemat-

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ical Reality? The question implies at once that we have some idea of what reality is to mean, otherwise the question itself needs some explanation before-hand. In case we mean by reality, material reality, the reality in electrons and energy and the like, then we must say at once that mathematical objects have no such reality. If we mean by reality that of a state of the ether traveling with the velocity of light, or such a reality as temperature, or entropy, or other similar things, we will admit that mathematical objects do not possess this sort of reality. They cannot be measured by any instrument, when they do not possess any such reality as that of the physicist. They belong to the intangible, invisible, inaudible, supra-sensual world.

"Ah!" the scientist says, "I see now where you are leading us. Into the limbo of Mysticism we must go, and find our way by the will-o-the-wisp." But do not be frightened, friend, Mysticism is your daily companion, though you know it not, and her will-o-the-wisp has led you past phlogiston, caloric, action at a distance, the ether, gravitation, and many other forgotten swamps. Mysticism merely means the more intense inspection of what is to be seen directly, immediately, what lies so close to us it is part of our being. Mysticism furnishes direct knowledge, not knowledge which is the result of a chain of reasoning, every link of the chain being subject to the question: Who forged you, and out of what metal, and what is your tensile strength? And Mysticism is present all the time with the mathematician. Most of his statements "This is because that other is so" are actually statements which mean "When I perceive this construction, I remember that in it is this other construction." Take almost any "proof" and examine it closely and you will find that it actually consists in pointing out features of the object under investigation in such a way, and in such an order that they become visible

to the other person. As Poincaré pointed out long ago, logic has no compelling power in itself. It is merely a systematic statement of what we see directly, or at least remember we have seen directly. It is evident then that we are most of the time examining a non-material, intangible, invisible world, whenever we are thinking. What is the origin of this world, whence it came, and how, is another story. We wish here merely to exhibit it.

In this world are the objects of mathematics, whether they be numbers, lines and points, functions, operators, forms, invariants, propositions, or doctrines. They have that reality which inheres in the world of ideas. Since ideas affect matter, and since ideas have a power of effecting great changes in the phenomena of the earthly existence, we see that they are just as existent as electrons, entropy, ether, energy, or, we dare say it, entelechy. Many men have died because of ideas who would never have fired a shot for an electron. It was an idea of Maxwell which made the radio possible, not the waves (if there be any) in the ether (if there be an ether). Ideas persist as effectually as chemicals, and more effectually than animal forms. The idea of happiness is a will-o-the-wisp which still leads mankind through all sorts of events. And the dream of Pythagoras that integers could give the key to the universe is a will-o-the-wisp that scientists are following very fast now-a-days. The ideas of mathematics still fall into their places in the magnificent cathedral that has been building these many centuries, while the snows of yester-year vanish never to return.

Reality? Does persistence in time measure reality? Then mathematical objects certainly possess far more reality than pyramids of stone. Success in causing re-arrangements of material things—does that measure reality? Then the long witness of the ages shows mathematics

directing the fleets of the nations, uniting the earth, the sea, and the air, so that the earth is one, not many, in its nations, and its peoples. Does the real consist in what everyone may see for himself, and agree with all others as to what he sees? Then mathematics has the only known reality. Does reality consist in that hidden harmony and beauty which makes the universe with all its diversity hang together, and give evidence of an internal structure which means stability and permanency? Then mathematics is most aware of such harmony and beauty in its ideas and objects. We must not assert that what can be weighed in a balance or turn a galvanometer needle is real and what cannot be so handled is not real. In such case we would be compelled to invent a new term to cover the reality of existence. But is not then a centaur real in this sense? Certainly the ideal centaur is real, the material centaur is not. But equally the ideal cube is real, the material cube is not. There is no such thing as a cube made of electrons or atoms. The mere discontinuity of matter alone would prevent. And even a cube made of continuous ether does not exist. Such an object consists of ether (material) as thought, fused with the mathematical cube (ideal) as thought. In fact so much of our daily life is made up of sense-data, held in a matrix of ideal-data, that we pay little attention to the latter, or if we do, we fall into the silly error of thinking the ideal-data are actually a part of the sense-data. A little reflection soon shows the utter impossibility of the judgement. This awareness of the ideal world is what is rapidly coming back into the scientific consciousness, after some years of submergence.

In fact Mathematics is a creative interpretation of the world: which means this. We have certain descriptive interpretations of the world, of which science (natural science) is one. The object of a descriptive science is to

record what is observed and from such a record to get a systematic and consistent explanation of the phenomena of life. A creative interpretation does not do this. It constructs an ideal system of objects which it studies, and about which it undertakes to know much. Then it undertakes to fit the events of life to this ideal system. One of the best examples is celestial mechanics, which is an attempt to fit the phenomena of the heavens to the system of rational mechanics, at least so far as the ideal law of gravitation will permit. The development of rational mechanics includes many studies into forces of character different from the gravitation considered, with different laws of action. When to this celestial mechanics is added the study of fields with curl, divergence, and the like, we have a much larger ideal system which will to some extent enable us to fit to it the phenomena of electromagnetic fields. That this ideal system is the only one, is not true—as was pointed out long ago by Poincaré and Volterra.

The objects of mathematics are then (as defined sometime since in the Century Dictionary by Charles S. Peirce) ideal structures, and their reality is that of any ideal structure. That this kind of reality is something different from that of the physical world is seen at once in the wide range of ideal structures which do not permit the phenomena of the world to be hung upon them. In mathematical terms, we study many objects and their transformations which do not admit the world of nature as an invariant. But let us not forget that there are many more invariants than those we find examples of in nature. It becomes evident then that the thinking activity of man has ranges which are beyond those of sense-data, which are in other words, supra-sensual. If to study these is Mysticism, then Mysticism is the largest part of our thinking.

And now we hear a skeptic's voice: "*Ex nihil, nihil fit.*" How can a mathematical object be created out of nothing?

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And if out of something, what is that something? In reply we ask him how he became acquainted with his "nihil" and what he means by "something." If he means material stuff, whether ether, energy, or electrons, he can easily see his own answer. Who told him that there is no existence in the universe but that of matter and its various manifestations? His own researches disprove that assertion. If his *nihil* means the ideal, we agree that out of the ideal arises the ideal. He returns however with the new challenge: "When the mathematician passes into his eternal sleep, where do his mathematical objects go?" Here indeed is the crux of the matter. If as Poincaré said: "*Tout ce qui n'est pas pensé est le pur néant,*" then when the thinker ceases to think, the thoughts cease, and we have a real nothingness. When the reel of film is run through and put into the box, the show is over. What is the reply?

We may admit that if the ideal can be destroyed then the ideal object does not exist. So too if matter can be destroyed, (as seems evident just now) then of course matter ceases to exist. Yet we behold in the distant stars the ceaseless creation of matter and we behold in the history of the universe as far as we know it the ceaseless action of thought; and all we can say is, that there seems to be no adequate reason to suppose either that matter will cease to be or that thought will cease to be. If the universe cease to exist, mathematics of course will cease to exist. But whatever reality there is in any of the ideal constructions of mathematics will exist so long as the ideal itself exists. There is no greater guarantee for any other kind of reality.

*"Toute action doit avoir un but. Nous devons souffrir, nous devons travailler, nous devons payer notre place au spectacle, mais c'est pour voir; ou tout au moins pour que d'autres voient un jour."*

JAMES BYRNIE SHAW.

UNIVERSITY OF ILLINOIS, JULY, 1925.

## MATHEMATICS AND NATURAL SCIENCE

THERE are various opinions concerning the position of mathematics in the field of science. The position usually taken is this, that mathematics has direct connections only with the exact sciences, i. e., with those which have reached the quantitative stage. And for these sciences mathematics is, according to some, the indispensable tool without which many of their questions could not be studied; according to others, the exact sciences are the source of the problems to which mathematics owes its existence as a living science. Without entering upon a discussion of these points of view, both of which can boast a venerable age, this paper considers the bearing which the studies in the foundations of mathematics, made during the last thirty or forty years, have upon the relation of mathematics to the sciences. These studies have been held by some to be essentially sterile, not capable of contributing to the extension of the domain of science. While this may be a more or less valid position for one who adopts the points of view referred to above, it must be admitted that it is one of the primary purposes of any intelligent pursuit of scientific knowledge to gain deeper insight into the fundamental bases of the sciences. To contribute to the accomplishment of this purpose has been the aim with which the present paper was written.

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The beginning of work in the foundations of mathematics, although suggested by studies pursued during the half century preceding, may be said to have been the work of Peano in the last decade of the nineteenth century. The subject gained a position of central importance as a result of Hilbert's lectures on Euclidean Geometry at the University of Göttingen during 1898-9, published subsequently as *Grundlagen der Geometrie*. The method used by Hilbert is one, which has become known as the postulational method and of which the fundamental characteristics may be summarized as follows: Realizing that in any deductive science, new concepts are introduced upon the basis of a definition, i. e., a description in terms of concepts already known, and new propositions are accepted on the basis of proof, i. e., a deduction from propositions already proved, the beginning of such a science, if it is to have one, must consist of concepts which are left undefined, and of propositions which are left without proof. Thus the basis on which Hilbert's developments rest consists of a set of undefined elements ("point," "line," "plane," the relations "between," "congruence," etc.) and a set of unproved propositions or postulates stating properties of the undefined elements. These postulates must satisfy certain conditions, of which the most important one is that of consistency. From them consequences are derived without the intervention of any extraneous elements and thus is obtained a body of propositions which constitutes a geometric science. Now the question arises whether this abstract science has any connection with the concrete science of geometry, which finds application in a variety of allied fields and in which we deal with data more or less directly related to reality. The connection is established as follows: Elements of experience are introduced in such a way that the undefined propositions are verified when the undefined terms in them are identified with these new elements. An illustration will

perhaps be in place here. It will be simpler, however, to use for this purpose a different postulate system, viz., one of many given by Professor Huntington.<sup>1</sup> The basis consists of a class  $C$  of undefined elements, called  $a, b, c$ , etc.; an undefined dyadic operation upon elements of  $C$  and denoted by  $o$ ; and three unproved propositions, viz., (1) If  $a, b$  and  $aob$  belong to the class  $C$ , then  $boa$  does and  $aob = boa$ ; (2) If  $a, b, aob, boc$  and  $ao(boc)$  all belong to the class  $C$ , then  $(aob)oc$  does and  $(aob)oc = ao(boc)$ ; (3) If  $a$  and  $b$  belong to the class  $C$ , then there exists in  $C$  an element  $x$  such that  $aox$  belongs to  $C$  and  $aox = b$ .

On this basis a theory is developed containing a number of propositions, which thus far have significance only for the class  $C$  whose elements are under discussion. Now it is evident, however, that if for the class  $C$  we take the class consisting of the positive and negative integers and zero, and for  $o$  the operation of addition, then the postulates are all verified and hence also all the theorems derived from them. The same statement can be made if  $C$  consists of all the rational numbers, excluding zero, and  $o$  means multiplication. Thus the postulate system may properly be called a "foundation for the theory of integers," and also a "foundation for nonzero rational numbers." (I must leave out of discussion here the important question as to the sufficiency of a set of postulates for a given field of mathematics. It would carry us too far afield and is of less importance for the immediate purpose of this paper. Its significance for the general theory is clearly evident from the illustrations used above.)

Postulate systems of this character have been set up for various parts of mathematics. Apart from the interest which attaches to them on their own account, they are of value inasmuch as they furnish insight into the logical

<sup>1</sup> See *Transactions of the Am. Math. Soc.*, vol. 4, 1903, p. 27.

structure of the domains of mathematics to which they apply. The tendency has been to extend their scope, to set up postulate systems which cover a wider and wider range. So, e. g., the General Analysis of E. H. Moore provides a foundation for a number of distinct theories belonging to the domain of analysis.

If we examine these postulate systems more closely, we observe that they are not entirely autonomous. For, if we are to be able to deduce propositions from the postulates, we must utilize logical connections, i. e., we have to draw upon the methods of logical procedure. It is not surprising, therefore, that the need began to be felt of examining more closely what the laws are which govern this "logical reasoning." We are usually asked to be satisfied with the statement that they are processes which are inherent in the human mind and that it is the task of the philosopher or psychologist, rather than of the scientist to be concerned with them. But are mathematicians justified in thus "passing the buck?" Logical reasoning seems, upon close examination, to have as its material, words, spoken or written words, and to deal with them according to fixed rules in very much the same way as mathematics deals with its material. It also, therefore, should be subject to the requirements of a deductive science, i. e., proceed from a basis, consisting of undefined elements and unproved propositions. A good deal of work has been done in this direction by those who have been interested in building up a foundation for all mathematics, including the logic of mathematics. It has given rise to the *Formulaire de Mathématiques* of Peano, and has reached its high-water mark in the *Principia Mathematica* of Whitehead and Russell. As an inevitable concomitant of this development there has come into being a system of symbols for the concepts of logic; for it is evident that one cannot rely upon

language as a tool to investigate the logic of language. This approach to logic, which was first conceived by Leibniz and had been pursued to a considerable extent by later writers, De Morgan, Boole, Frege and others, has become known as symbolic logic. Through this work a deeper insight can be gained into the processes which are thought to constitute "logical reasoning," because by means of it the methods of such reasoning are investigated in their interdependence and their connection with the basis which has been laid down.

There is, however, a difficulty; this enters in when we try to turn the results obtained in the symbolic logic to account in the field of actual mathematical reasoning. This should be done, as in the case of the postulates of Huntington, by identifying the undefined elements with definite mathematical concepts in such a way that the postulates shall become valid. But to establish this validity we have in view of the character of mathematics as an abstract science, nothing to appeal to except the "inherent qualities of the human mind," i. e., we are back at our starting point. It is considerations such as these which have led the Dutch mathematician Brouwer to a position, which has been characterized by some as revolutionary, but which may very well be held to be ultraconservative. For he wishes to reserve in mathematics a preponderant influence for intuition and to deny a position of undisputed authority to logic. "In human understanding" he says, "there is no logic; in mathematics it is not certain whether all logic has validity, and it is not certain whether it can be decided, whether or not all logic has validity." This statement has especial reference to the role of the three fundamental canons of logic: the Law of Identity, the Law of Contradiction, and the Law of the Excluded Middle; to the last of which he denies unlimited validity in mathematics.

In concluding this very brief survey of the objectives of the foundations of mathematics, let us observe that there has been a gradual extension of the scope of the foundations, from limited fields to larger ones so as to include ultimately the entire subject including its logical substructure; and that there has come as a partial reaction from this process a suggestion to materially restrict the importance of logic in mathematics.

Now let us turn to the question whether all this work has a bearing upon other sciences and upon their relation to mathematics. In as far as they use mathematics, scientists are usually willing to accept its conclusions and to use them for their own purposes. Looked at from the point of view of the foundations, this amounts to accepting as an established fact that the undefined elements can be so identified with elements in their own domain that the postulates will be satisfied. So, e. g., when the chemist integrates a reaction velocity in order to obtain the quantity of material transformed by the reaction, he assumes that the processes are of such character that the integral actually exists. And usually he is guided in his acceptance of these conditions and guided rightly by his knowledge of the properties of the materials with which he is dealing. How is the situation with regard to the logical bases? Whatever we may think of our brother scientists, it must be conceded that they are concerned as well as the mathematicians with "logical reasoning" and, therefore, that they will be interested in the foundations of logic. In considering these questions, we are driven to consider separately two aspects of scientific work which sometimes seem not to be in complete harmony with each other. In his address at the dedication exercises of the Woods Hole Laboratory on July 3, 1925, Professor Lillie said:

"The scientist devotes his life to increase of learning in

the belief 'that there is no alleviation for the ills of mankind but in *the resolute facing of the world as it is,*' and with firm faith that by patient seeking the truth concerning man's relations to his world may be found. Through generation after generation of effort always hard and often ill rewarded, there has been produced a great body of scientific fact and hypothesis useful for criticism of creed and custom, for inspiration, for human needs. We are inheritors of this sacred legacy; it is our trust to preserve and develop it."<sup>2</sup> Again, "The function of Science,' said Agassiz, is to 'strive to interpret what actually exists.'"<sup>3</sup>

If we now turn to what is called scientific theory, we encounter a different point of view, viz., one according to which a scientific theory "essentially consists of a conceptual scheme, designed by the synthetic activity of the mind, working with the data of perception, for the purpose of representing particular classes of sequences and regularities in our percepts."<sup>4</sup> The points of view here contrasted are by no means inherently contradictory. Rather are they concerned with different aspects of Science; and the problem is to set them in the proper relation to each other. With this objective in mind, we want to consider the relation between each of them and the work in the foundations of mathematics.

A scientific theory, conceived of as a descriptive scheme, is in reality a mathematical theory, at least mathematical in structure. It must have been some such idea as this which Leonardo de Vinci had in mind when he held that "No investigation can strictly be called scientific, unless it admits of mathematical demonstration." Such a descriptive scheme consists of a set of concepts and a body of prop-

<sup>2</sup> See *Science*, vol. 62, No. 1604, Sept. 25, 1925, p. 272; the italics are mine.

<sup>3</sup> See D. S. Jordan, in *Science*, vol. 62, No. 1606, Oct. 9, 1925, p. 326.

<sup>4</sup> E. W. Hobson, *The Domain of Natural Science*, p. 36.

ositions concerning them which are to be logically connected with each other. What else does this mean but that they are to be deducible from a certain basis by "logical reasoning." But this basis for a science must be such that its undefined concepts are identifiable with the concrete elements of that section of the world as it "actually exists" with which this science is concerned. So, e. g., one would conceive that the foundational basis for genetics would have among its undefined concepts a "hormone" and "gamete," concerning which certain unproved propositions would be laid down. A basis for Chemistry would probably include as an undefined element "ion" or "electron," and perhaps "chemical affinity," etc. But the theoretical scientist has to go further; he has to inquire what "logical reasoning" in his particular field means. And he will have to obtain an answer in terms of logistics, of such a character that the undefined concepts in terms of which his logic is stated can be identified with the categories which have significance in the laboratories of his science. Suppose, for instance, that the concept "negation" were one of the undefined logical elements (as is the case in Whitehead and Russell's system of mathematical logic). If we want to bring the scheme of logic which involves this concept to bear upon "logical reasoning" in a particular science, we must make sure whether the percepts with which the observer in that science is concerned can be "negated" in a manner that has meaning in that field; and if so, it has to be made clear exactly what meaning has to be attributed to the negation. "Base," "acid," "salt" have, or at least used to have, perfectly definite meanings in Chemistry; they are words which correspond to properties that can be objectively verified. What would a not-base, a not-acid be? What objective meaning are these terms to receive if the logical postulates involving the concept "negation" are to be veri-

fied? This is the sort of question which would arise and which would have to be answered before an adequate logical foundation for Chemistry could be constructed. This suggests at once the possibility of a variety of logical systems, each one of them especially adapted to the needs of the observational or experimental aspect of a particular science. Once this were done, we could then determine whether it would be possible to set up a mathematical logic which would provide a second-order abstraction of the different logical systems, just as now mathematics provides an abstract basis for the quantitative aspects of different sciences. And that this would be of importance must become clear as soon as we recognize that the sciences have other aspects besides the quantitative ones and that also on their non-quantitative sides "logical reasoning" is a desideratum.

A postulational basis thus provided for a laboratory science, and that is what the theoretical branch of this science would have to provide, would be sure of consistency as soon as it had applicability. For the very character of the basis would then be such as to assure it of a concrete counterpart; and, in spite of the visitor to the zoo who declared of the giraffe that "there ain't no such animal," the very essence of reality is that it is free of contradiction, in the logical sense. In the field of observational science, what is, is true. It is only in conceptual structures that the logical configuration of contradiction can arise. If, however, our conceptual scheme is constructed, in accordance with the point of view of the foundations of mathematics, so as to be *applicable*, then it is inherently safe from the danger of contradictoriness.

This then is the bearing of the point of view of the foundations of mathematics upon the natural sciences: that their theoretical aspects including the logic adapted to them should be developed upon a postulational basis from the bottom up, in such a way as to be applicable to these sci-

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ences as developed in the laboratory and the field. It may be that strange results will come about. We may perhaps find verified the paradoxically sounding dictum of Pascal. "*Ni la contradiction n'est marque de fausseté ni l'incontradiction n'est marque de vérité.*"

It remains to inquire what bearing the conclusions we have reached may have upon the study of the foundations of mathematics. Quite in contrast with what has just been said about the sciences, the most serious problem in the foundation of mathematics has been that relating to consistency. Our preceding discussion must have made it clear that if for mathematics a basis of ultimate reality could be found, comparable to that which laboratory and field experience furnish to the natural sciences, there would be a possibility of settling the vexatious problems connected with consistency. This would carry with it, however, the necessity of a logical foundation which would be applicable to such a reality. And it is precisely such a basis to which one is led if one follows the point of view of Brouwer referred to above. In the first place he finds an ultimate basis of reality for mathematics in the intuitive concept of time, in which are united indissolubly the concepts of "continuity" and "discreteness" (flow of time or duration, and moment of time or instant), and in which is found the abstract substratum of all observation of change. This, coupled with the capacity of the mind to construct "its own universe, independent of the universe of our experience, somewhat as a free design, under the control of nothing but arbitrary choice, restricted only in so far as it is based upon the fundamental mathematical intuition"<sup>5</sup> constitutes the rock foundation upon which the entire structure of mathematics rests. A postulational treatment of mathematics, if it is to be free from the difficulties inherent

<sup>5</sup> See the author's article on "Brouwer's contributions to the foundations of mathematics," *Bulletin, Amer. Math. Soc.*, vol. 30, 1924, p. 31.

in the problem of consistency, must relate itself to these experiential data in the manner of the postulational bases for laboratory sciences suggested in the previous pages, i. e., it must be *applicable* to these data. And, furthermore, the logic by means of which from such a postulational basis the mathematical superstructure is to be developed must be in harmony with this same substratum of experience. It proves to be rather different from Aristotelian logic which we had become accustomed to accept as derived from the "inherent qualities of the human mind." For, the canons of logic are not found to be endowed with unrestricted validity. It is this which accounts for Brouwer's conclusion that the Law of the Excluded Middle can not be given complete acceptance in mathematics and which has led him to investigate what would result if this law be ejected from the logical basis of mathematical reasoning. It is not inconceivable that other methods may be found by which a basis of reality can be provided for mathematics and that different logical systems will be requisite for them.

The conclusion to which we have come is this: The point of view of the foundations of mathematics, if carried into the field of the natural sciences, suggests a definite orientation of the relations between their theoretical and their experimental aspects. The objective reality possessed by the material with which experimental science deals makes possible a ready disposal of the question of consistency which has been difficult of settlement in the case of mathematics. This in turn points out a possibility of solving the difficulties arising in mathematics by providing a basis of ultimate reality for this science. It is observed that one such solution is furnished by the point of view reached by Brouwer in his studies of the foundations of mathematics.

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## INFINITY AND THE INFINITESIMAL

(CONCLUDED)

### PART III

It was Mill's ineluctable contention that the term infinity denoted nothing whatsoever unless associated with a substantive to which the alleged attribute was (verbally, at least) applicable.<sup>67</sup> Mill himself, it is true, was several

<sup>67</sup> J. S. Mill, *An Examination of Sir William Hamilton's Philosophy*, 5th edition, 1878, p. 60: "The Infinite itself must be not only infinite in greatness, but also in littleness; its duration is not only infinitely long, but infinitely short; it is not only infinitely awful, but infinitely contemptible; it is the same mass of contradictions as its companion, the Absolute."

Such words are highly worthy of being pondered. But admiration of Mill, the lustre of whose two major works was sufficient to have illuminated the entire nineteenth century, would be a disservice to the principles he espoused if it blinded us to any blemishes in his arguments. And although, as we have seen, Mill attacked Hamilton's doctrine of the Absolute and, in his *System of Logic*, signally clarified the canons of that science, he nevertheless himself stumbled over the infinite. Since the ablest philosopher of his day fell headlong into this abyss without a bottom, it is incumbent on us, while availing ourselves of one of his arguments and while paying our respects to his genius, to point to one argument that was faulty, one spot where his genius was clearly peccable. Two brief passages from *An Examination of the Philosophy of Sir William Hamilton* suffice to show unanswerably that Mill was an advocate of the infinite; and several rejoinders to disputants, appearing as notes in later editions of that opus, show further that he was not to be moved from his position: "The conception of Infinite as that which is greater than any given quantity, is a conception we all possess, sufficient for all human purposes, and as genuine and good a positive conception as one need wish" (p. 62). Again: "The space between two parallels, or between two diverging lines or surfaces, extends to infinity, but it is necessarily less than entire space, being a part of it. Not only is one infinity greater than another, but one infinity may be infinitely greater than another" (p. 552).

Promptly upon the publication of these extraordinary statements—the second being doubly extraordinary in view of what Mill had elaborately said on the significance of spatial conceptions—Dean Mansel entered the lists, urging that the word indefinite was more suitable than the word infinite. To this objection Mill replied, in part, as follows:

"In what Mr. Mansel calls the metaphysical use of the word indefinite, he affirms it to mean 'indefinitely increasable.' Elsewhere he says 'An indefinite time is that which is capable of perpetual addition: an infinite time is one so

times guilty of rash statements regarding the infinite; his customary logical restraint was, as we have shown above, seriously wanting. But his statement that, if we are to speak of infinity at all, we must speak at least of an infinite something, seems closed to any conceivable criticism. And indeed we have not only failed to meet anywhere a reasonable confutation of this particular doctrine: we greatly doubt whether anyone nowadays would be so rash as even to attempt to confute it. It is therefore doubly astonishing that De Morgan, whose mathematical learning was as much vaster than ours as his scorn for an infinite *number* was more scathing, should have involved himself in this identical blunder. Definitely repudiating the fancy that a *number* could ever be said to be infinite, and yet lured on by a strong conviction that he had a very definite conception of the infinite,<sup>68</sup> he was driven at length into that same blind alley of logic which Mill only a few years earlier had

great as to admit of no addition.' I now ask, which of these is the correct expression for that which is greater than anything finite. . . . Is a merely indefinite time greater than *every* finite time? Is a merely indefinite space greater than *every* finite space? Is a merely indefinite power greater than *every* finite power? The property of being greater than *every* thing finite belongs, and can belong, only to what is in the strictest sense of the term, both popular and philosophical, Infinite." (5th ed., p. 64; italics ours.)

Our own objection to Mill's argument is twofold: his questions are illegitimate, as his answers, although appropriate thereto, are misleading. He says, Is a merely indefinite space greater than *every* finite space? and answers this question in the negative. However, if we re-phrase the question, as we are bound to do in order to save injecting our conclusion into our premiss, we ask, rather, Is a merely indefinite space greater than *any* finite space? And our answer to *that* question is in the affirmative. For what Mill strangely but indisputably overlooked in phrasing his questions as he did was that, by using the word *every*, he presumed that the number of spaces was a closed aggregate—an illicit assumption that is at the base of all theories of the "completed infinite." On the other hand, as we have said, we have only to ask, Is an indefinite space greater than *any* finite space? and our answer comes easily, It is so. For, propose *any* finite space you please, and the indefinite space we reserve conceptually can at once be demonstrated to be larger. Nor can the rebuttal be entered that, before your particular finite space was announced, this indefinite space had not been determined, and that we were waiting for your decision merely to trap you; for had our indefinite space been antecedently determined, it would then no longer have been indefinite; rather would it have been definite as well as finite; and it was our duty to show, not that a definite, but that an indefinite space may be considered larger than any finite space that can be given.

<sup>68</sup> Augustus De Morgan, On Infinity; and on the Sign of Equality, *Cambridge Philos. Trans.*, Vol. XI, pp. 203 seq.

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described as a "mass of contradictions" and, after Hamilton, a "fasciculus of negations"—a description, we may add, that is possibly the most temperate, considering the provocation, of all the remonstrances ever breathed forth on the philosophical air of England.

For if we pause to ask what meaning is to be attributed to infinity when that word stands up in naked grandeur, the answer refuses to come; and mere argument refuses to entice it. If there is such a thing as infinity, then some *thing*, it would seem evident, is infinite. If we are now forced to confess that concerning what this infinite thing is we do not, and perhaps never shall, have knowledge, we have effected an escape through a dialectic trap-door in our platform. And if our desire is simply to escape, anyhow and anyhow, that informal and final exit is advisable. But if our desire is not to evade an argument, but rather to settle a difficulty, our course at once is apparent: we must admit *ab initio* that our alleged infinity is an infinite something; then we must admit that it is something of which we know, or at least have had experience of in some form, otherwise it must be refused the name "something"; and straightway we have admitted so much as this—and admitting less deprives us of the right to remain longer in the argument—we have arrived at the heart of the controversy. For, having just allowed that infinity is an attribute predicable only of things infinite, we now face the ultimate necessity of explaining what these infinite things are. And this, we submit, can be accomplished in but one way, despite the brightest sophists' having polished their wits for twenty centuries in endeavors to think up another. *What is infinite is composed of infinitely numerous parts.* These parts, we speciously may affirm, are themselves either finite or infinite. However, since calling them the latter simply defers our analysis of that adjective, we are

driven back at last into confessing that the ultimate constituents of our infinity are, although infinitely great as to number, finite in every other particular. Our conclusions may hence be summarized as follows: *Infinity is the name for something infinite; this infinite something, being only another name for a collection of all its parts (which, though finite in themselves, are infinitely numerous), is hence expressible only as a numerical quantity. What is only thus expressible must automatically have recourse to numbers; and therefore, we conclude, nothing may be said to be infinite unless a number is first shown to be so.*

## IV

In the last analysis, when all the arguments are in, when it has finally been agreed that a magnitude must be expressible in numerical terms if it is to be credited with the possession of quantity, and when it has been further agreed that the words "infinite number" are a contradiction in language that even a profuse sprinkling of Greek and Hebraic characters is unable either to cover up or to justify—when all this has been granted, however reluctantly, a final question is sometimes sprung by the defendant. And usually, we regret to relate, he appears proud of it.

What of space? he demands in triumph. Nothing can be termed infinite, you have maintained, unless some number itself can be termed infinite. It is true that no number yet found can be termed infinite. It is likewise true that you have submitted several arguments against the expectation of finding such a number. It is true again, or at any rate I am unable at the moment to show its falsity, that without an "infinite number" nothing could be termed numerically, and if not numerically then in no other form, infinite. That is all very interesting. But, I repeat what of space? Somewhere there is a shocking flaw in your argument. You fail to justify your own principles

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of logic. By your fine reasoning you have committed yourself to the absurdity of saying what every man in his senses knows is nonsense. Space, on your own findings, is not infinite. Very well: be frank now and say that space is finite. Say so, and I shall have to renounce all those arguments which have led to this preposterous conclusion. Refuse to say so, and I shall then know what I have long suspected—that you are quibbling.

The demand, as thus phrased, we shall first remark, betrays surprising ignorance both of the principles of dialectic and of the manner in which the same question has in the past been repeatedly countered.<sup>69</sup> Yet if the question posed is hypothetical in part, more than one modern realistic philosopher, justly esteemed on many grounds by his contemporaries, has actually challenged the authors with a query nearly identical with the one given. "What of space? If space is not infinite, it follows that space must be finite. But the latter conclusion is a mockery of reason. Space, it hence follows, must be infinite." Such is the purport, almost the verbal facsimile, of the ultimate rejoinder of those who, frustrated by formal arguments against mathematical infinity, make desperate shift to enlist "space" as their ally.

A discussion of realism does not fall within the scope of this paper; nor does the history of philosophic reason. But if the assurance of modern thinkers who propound empty riddles like the foregoing is based on complete forgetfulness of their masters, all their contemporaries can not safely be depended upon to suffer equally from malignant amnesia. The Principle of the Excluded Third or Middle

<sup>69</sup> From a galaxy of thinkers, we select merely one—Alexander Bain whose infrequent mention of infinity, it may be suspected, was due to a belief that the matter was too juvenile for mature study: "The only real notion that we can ever form of extension, as empty space, is a sweep between two resistances: infinite space, where the points, or termini, of resistance are done away with, is therefore an incompetent, irrelevant, impossible conception." *Mental and Moral Science*, 1872, pp. 48-9.

—the principle here invoked by the infinitists—assuredly is the most generally dependable, as it is the most justly lauded, of all logical devices for setting off two contradictory judgments, and for exposing the antithesis between them. In Aristotle's words, "Everything must be affirmed or denied." S is either P or not P: no middle judgment is allowed by this principle. Either I am a biped, or I am not a biped; either it rained today, or it did not rain today; either there is a word of ten syllables in this article, or there is no such word in this article: these are all valid antitheses. But either the square root of 2 is an odd number, or the square root of 2 is not an odd number (*i. e.*, is an even number)—is this an intelligible use of the disjunction? Clearly it is not, for the square root of 2 is neither odd nor even; indeed, its incommensurability is attested by that very circumstance. We can make such a disjunctive judgment if we like to. We can say, either the square root of 2 is pea-green, or the square root of 2 is not pea-green; as we do not need to instruct our contemporaries, the permutations of English vocables are fairly numerous. But such exercises, it is gratuitous to note, are simply instances of the manner in which thinking men conceivably can, and indeed not seldom do, waste their substance.

Sir William Hamilton was probably the most conspicuous thinker of the last century to countenance such logical malpractice. Armed with this famous instrument of reason—the Principle of the Excluded Third or Middle—he confronted the Deity with the privilege of possessing, and of delivering into his hands as a logician, either some particular attribute or its opposite. Of necessity, his conclusions were abortive. His instrument failed to bring forth a viable answer because it was not applied, and for reasons we deem sufficiently obvious, to an object within the range of experience. As Gomperz trenchantly puts it: "All such audacities come to an end when it is recognized



that the Principle of the Excluded Middle offers us the choice, not between contrary opposites, but simply and solely between a positive statement and the pure negation of it, the latter to contain no jot or tittle of affirmative meaning."<sup>70</sup> In other words, applying this lemma to our problem, before we are justified in imposing the Principle of the Excluded Middle on space, we are required to make some positive statement about space; only then are we logically free to say that, to this positive statement and to the pure negation thereof, no alternative is allowed by our principle. And it is thus that the statement, Space is either finite or infinite, falls into the same class with Sir William Hamilton's disjunctive judgments on Deity.

For (not to enter upon realism in this paper) what positive statement on space can be uttered? Clearly all we can say regarding space is that space is either finite or infinite. And this is not a positive statement about space: it merely is a repetition of our ancient antithesis, not as between a positive statement about space and the pure negation of that positive statement, but simply as between two verbally contradictory attributes attached to another word (space) which itself denotes nothing, and hence might reasonably be assumed to be nothing itself, save as a term correlating certain actual experiences. To say we experience space is simply to say, without any regard for intelligibility, that we experience a mode of experience.

Prejudice is so strong and so widespread, not only in favor of the existence of space as something that actually is experienced, but in favor also of the infinitude of that something, that we feel slight hope of having much weakened or restricted, with these few paragraphs, a dual dogma that is the disgrace of clear reason and the "scandal," as Kant put it, of philosophers.

<sup>70</sup> Theodor Gomperz, *Greek Thinkers*, trans. by G. G. Berry, 1912, vol. IV, p. 72.

At another time, we hope to make good our present enforced brevity. It must suffice now to terminate this digression by driving home the essential meaninglessness of the question, Is space finite or infinite? The question is meaningless for the sufficient reason that neither of the two answers which it invites can signify anything until an antecedent question is propounded. That question is, Is there such a thing as space? or, in other words, has space *sui generis* existence? And the answer to this latter question, which must antecede such disjunctive propositions as those noticed, can not be returned in the affirmative unless some one can make affidavit that he has experienced it. This he must do, it is needless to say, without reference to any other object of experience; and this we believe is impossible; to date, in any case, it has proved so. Until such an answer is given, therefore, there is not the least antagonism between our arguments against infinity and the popular feeling that space must be infinite: the only antagonism worth heeding will appear after the disjunctive judgment *Either space exists or does not exist* is answered in clear language, in terms of direct experience, and in the affirmative. Pending that positive affirmation, the proper course for philosophers would seem to be the renunciation of transcendental puzzles, and the repudiation of illegitimate disjunctive judgments that, as we have briefly shown, refer straight back to an antecedent question.

Moreover, a little further reflection, we believe, will incline those philosophers, at present hostile toward the foregoing conclusion, to a somewhat less mystical attitude. Space will then be treated by them not as a completed vacuum of "infinite" volume: it will be regarded instead as a generality abstracted from different classes of sensations, and applied thereto as a convenient proposition indicating merely the order and intensity of those sensations. The ability to "move" outward indefinitely into space will thus

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be the more readily correlated with the ability to "move" at pleasure along the series of natural numbers. And when this correlation is made, the notion of "infinite space" will be viewed, we think, as logically tantamount to the notion of an "infinite number"; the seduction of which notion lies, as was earlier suggested, in just this circumstance—that the unhampered process of writing down numbers ever larger and larger arouses the naive belief that this series is something above and beyond, and independent of, the separate acts of inscribing such numbers.<sup>71</sup>

<sup>71</sup> The existence of space *sui generis* is a subject better treated in a general examination of realism than in a criticism of the logical arguments for infinity. It might consequently be deemed improper to dwell at any length on, or even to mention at all, a problem confessedly lying afiel of our own topic. Nevertheless, it should be noted not only that every defence of space is ultimately plead at the bar of the infinite, but also that the rôles are reversed nearly as often: it is to space that the infinitists turn, nine times out of ten if not more frequently, as the court of last appeals for their client. Without infinity, as indeed most philosophers have conceded, the existence of space is not readily justified; but without space, on the other hand, it is difficult to point to an infinite aggregate. We feel, therefore, that it is competent to us at least to mention, if not here to dwell upon as we might, this particular problem, the more so as Kant's famous antinomy is often alleged wholly to have disappeared, and as the subsequent reification of space is thus held to be perfectly legitimate—whence arises again the phoenix-argument for infinity. For example, J. E. Boodin (*A Realistic Universe*, 1916, p. 246) says, appealing to the Cantorian "proofs" of the infinite: "We may regard Kant's thesis, therefore, as obsolete. To quote Bertrand Russell: 'Owing to the labors of the mathematicians, notably Georg Cantor, it has appeared that the impossibility of infinite collections was a mistake. . . . Hence the reasons for regarding space and time as unreal have become inoperative, and one of the great sources of metaphysical constructions is dried up.'" Mr. C. D. Broad (*Perception, Physics, and Reality*, 1914, p. 300) similarly echoes the authority of Mr. Russell: "The arguments to prove that space cannot be real because, if it were, contradictory propositions would be true about it, all rest on sheer errors about infinity and continuity. For their refutation we have merely to refer to the relevant chapters in Mr. Russell's *Principles of Mathematics*." Again, Sir Thomas Heath (*A History of Greek Mathematics*, 1921, Vol. I, p. 279) joins in this uncritical chorus of obeisance: "It appears, then, that the first and second [of Zeno's] arguments, in their full significance, were not really met before G. Cantor formulated his new theory of continuity and infinity. On this I can only refer to Chapters XLII and XLIII of Mr. Bertrand Russell's *Principles of Mathematics*, Vol. I." See also Aliotta's *Idealistic Reaction against Science*, trans. by A. McCaskill, 1914, p. 335, for an Italian echo of this anti-autinomial jubilation. We select these writers from many, both to show how eager are the infinitists to prove the existence of space, and to justify our own selection of Cantor and Mr. Russell as the chief sources, and admitted to be such, of those arguments for infinity against which we have labored.

It is manifestly no part of our purpose to treat here of elliptical space, *i. e.*, the space of Einsteinian meta-geometry. We are content to rest our argument against "infinite" space—though we have added a few illustrations of it—on the simplest and plainest consequence of pure logic. The reader may be reminded,

If the foregoing psychological argument is valid, and if the notion of "infinite number" has earlier been logically incapacitated, we can now see no escape from the conclusion, already anticipated, that the term infinity is, when strictly used, wholly devoid of significance. Infinite space, infinite time, infinite anything else you may care to affirm infinite, are all concepts reducible to a single form, and meaningless if not reduced to that form. That form is the numerical form.<sup>72</sup> For anything which exceeds a single datum of experience implies a repetition or augmentation of that experience—either directly through the senses, or else through a process of ratiocination which itself depends upon memories of other repetitions or augmentations which have occurred and were remarked upon previous occasions. If the original experience is repeated, number is immediately involved; if augmented, a relation is felt to obtain between a present experience and a past, and no otherwise than through numerical ratios can such a relationship be subjected to scientific treatment. Number hence becomes at once the sole language through which we can accurately talk of succession, of repetition, or of increase. And any concept involving what is alleged to be greater or more durable or more intense than any given experiential datum, promptly involves one of these terms, if not all three of them.

however, that our logical conclusion is supported by an appeal to the Principles of Relativity whereby space and "inity" are dirempted. And his attention is likewise drawn to the views of physicists who, on the basis of classical mechanics, have pointed to the absurdities of an "infinite" universe. Arthur Haas, for example, has remarked (*The New Physics*, N. D., trans. by R. W. Lawson, p. 148) that "the assumption of an infinite universe is incompatible with Newton's law of gravitation." See also Nicolas P. Rashevsky in the *Scientific American* for September, 1925, and W. Pauli's "Relativitätstheorie" in *Encyclopädie der Mathematischen Wissenschaften*.

<sup>72</sup> Cf. Hobbes, *Concerning Body*, 1656: "Whensoever . . . it is asked . . . *How long is the journey?* it is not answered indefinitely, *length*; nor, when it is asked, *How big is the field?* is it answered indefinitely, *superficies*; nor, if a man ask, *How great is the bulk?* indefinitely, *solid*; but it is answered determinately, the journey is a hundred miles; the field is a hundred acres; the bulk is a hundred cubical feet." Cf. also, Locke, *Essay*, Bk. II, ch. XVI, sec. 8 and Bk. II, ch. XVII, sec. 13.

We feel some hesitancy in mentioning such matters at all; elaborating on them as we have, and so elevating what may be deemed a platitude to the level of a critical controversy, is perhaps gratuitous zeal, at least in the judgment of such readers as are agreed upon the conclusions here arrived at. But philosophical clarity is cheap, we believe, at the price of repetition, and tautology is at any rate preferable to vagueness. And it is vagueness (vagueness due either to taking certain concepts for granted, or to a study of them so technical that the language used therefor is in constant danger of losing its sobering contact with experience) that debilitates large portions of contemporary logic in its application to mathematical thought. "The practical use of technical forms of reasoning is to bar out fallacies," as Mill well said, adverting to this particular danger, "but the fallacies which require to be guarded against in ratiocination properly so-called, arise from the incautious use of the common forms of language; and the logician must track the fallacy into that territory, instead of waiting for it on a territory of his own."<sup>78</sup> And it is just this ignorance of, or indifference toward, the dangers surrounding the loose constructions of our ordinary speech and writing that causes the major part of the confusion that we have noted. Entering as they do into every verbal study of the subject, such convenient grammatical idioms, provided they are not first rendered harmless by prophylactic measures, contaminate the very principles they are called upon to strengthen and to clarify. On the other hand, symbolic reasoning in its so-called pure form is dangerous in almost direct proportion to its convenience. For these two reasons, therefore, we have chosen the ungrateful task of trying to translate into more fundamental terms a concept that apparently can be portrayed by an abstract mathematical symbol, or by an easily grasped sentence in

<sup>78</sup> J. S. Mill, *A System of Logic*, 9th edition, p. 113, note.

plain English, but which in either form, without careful psychological analysis, lends itself to the perpetuation, and sometimes to the propagation, of logical error.

Moreover, the psychology not only of the mathematician himself but also of his less talented forebears throws light on the concept we are studying; just as deficiency of oil, by inducing characteristic noises in a machine, calls attention to those parts where there is friction. For this reason, besides observing the lubricated performance of the psyche, we would fain see how it works without the oil of mathematical sophistication. And therefore the study of aboriginal equivalents of "infinite number" is to be recommended as a preparatory course, and a highly sobering one, to the study of an abstruse symbol like Aleph-zero. This study will serve, we think, less to exalt primitive than to abash twentieth-century concepts.

"It is not to be supposed, because a savage tribe has no current words for numbers above three or five or so," E. B. Tylor,<sup>14</sup> for example, has remarked, "that therefore they cannot count beyond this. It appears that they can and do count considerably farther, but it is by falling back on a lower and ruder method of expression—the gesture language." This conclusion has been independently corroborated by a number of animal-observers. Citing a case vouched for by Leroy, Sir John Lubbock relates an interesting attempt to deceive a crow which it was desired to shoot. To allay the bird's suspicions, two gunners went to the watch-house, one of whom passed on while the other remained. The crow apparently counted, however, and kept her distance. The next day three men went out, but again the crow apparently perceived that one of the three hunters remained. Not till as many as five or six men composed the party was the crow, to judge by her actions, numerically confused. Lubbock continues: "Lichtenberg

<sup>14</sup> *Primitive Culture*, 6th ed., Vol. I, pp. 243-4.

mentions a nightingale which was said to count up to three. Every day he gave it three mealworms, one at a time. When it finished one it returned for another, but after the third it knew that the feast was over. According to my [own] bird nesting . . . experience, if a nest contains four eggs, one may safely be taken; but if two are removed, the bird generally deserts";<sup>75</sup> and several even more remarkable instances are given by Lubbock who proceeds to draw the conclusion that many animals possess a slight but still definite ability to count. Commenting on this putative gift, L. L. Conant<sup>76</sup> says: "Many writers do not agree with the conclusions which Lubbock reaches; maintaining that there is, in all such instances, a perception of greater or less quantity rather than any idea of number. But . . . any reasoning which tends to show it is quantity rather than number which the animal perceives, will apply with equal force to the Demara, the Chiquito and the Australian." It is nevertheless true, as Conant himself points out, that deductions from animal behavior are somewhat vague; and therefore, having drawn attention to these facts, we shall now proceed to the firmer ground of human, but still primitive, behavior.

In doing so, it may at once be stated, as a universal law, that "some practical method of enumeration has, in the childhood of every nation or tribe, preceded the formation of numeral words." On Conant's authority it is thus illegitimate to infer, from the poverty of a savage's vocabulary, that his ability to enumerate is proportionally bankrupt. Savages, on excellent authority, are able, and animals (if able to count at all) *must* be able, to count without verbal or mathematical symbols. The collapse of gesture language, however, occurs not long after the exhaustion of symbolic systems. For this reason it is safe as well

<sup>75</sup> *Nature*, Vol. XXXIII, p. 45.

<sup>76</sup> *The Number Concept*, 1896, pp. 5-6.

as expedient to confine ourselves to actual vocabularies remembering that whilst the spoken sign-system is not a full indication of the savage's mathematical talents, on the whole it is not an unfair one. A short list of numerical terms, collected by numerous inquirers, is hence appended; and a few conclusions will thereafter be drawn from such data:

In the Puri vocabulary we find *omi* (1), *curiri* (2), and beyond *curiri* simply *prica*, signifying either 3 or many.

In the Tasmanian vocabulary, according to Jorgensen, we find *parmery* (1), and *calabawa* (2). Anything greater than 2 is called *cardia*—i. e., *cardia* = either 3 or many.

According to A. Oldfield (*Transactions Ethnological Society*, Vol. III, p. 291) the New Hollanders have no names for numbers beyond 2. The Watchandie oral notation runs as follows: *co-ote-on* (1), *u-tau-ra* (2), *bool-tha* more than 2 or many. If the objects to be indicated are overwhelmingly numerous, the suffix *bat* is appended to *bool-tha*; and thus in cases of dire necessity *bool-tha* becomes *bool-tha-bat*.

According to F. H. Cushing (*American Anthropologist*, 1892, p. 289) the Zuni scale is as follows: 1 = *töpinte* = taken to start with; 2 = *kwille* = put down together with; 3 = *ha'i* = the equally dividing finger; 4 = *awite* = use the fingers all but done with; 5 = *öpte* = the notched off.

In the Botocudo vocabulary, one of the most exiguous of all, we find merely *mokenam* (1). Anything greater than 1 is called *uruhu*—i. e., *uruhu* means either 2 or many.

Even more poverty-stricken than this, according to D. G. Brinton (*Essays of an Americanist*), is the numerical language of the Chiquitos of Bolivia; for these practically wanted all numeral-words. The number 1 was expressed by *etama* meaning "alone."

Other authorities may be consulted with profit. Among these might be mentioned Sir John Lubbock who has reported (*Prehistoric Man*) that many native Brazilian and Australian tribes were found by him to be unable to numerate above 3 or 4; and the traveler, Dr. A. E. Meyer, who found that the Arfakis of New Guinea counted accurately only to 5, proceeding beyond this with extreme difficulty, and coming to a painful and final halt on reaching 20 (the number of their fingers and toes). See also Fr. Müller's *Sprach-*



*wissenschaft*, Schoolcraft's works on the American Indian, E. M. Curr's *The Australian Race*, and contributions made by Franz Boas to the *Sixth Report on the Indians of the Northwest* and *Proceedings of the British Association for the Advancement of Science*, 1889.

Now, what do such citations prove? At least one conclusion which they point to is fairly obvious, and not open to a great variety of interpretations. And that conclusion is this: nearly every savage or primitive tribe possesses a name for a group of objects, the baffling multiplicity of which defeats the actual ability to enumerate them either by naming these objects individually (*i. e.*, by putting them into correspondence with formal symbols), by relating them with a set of other objects (*e. g.*, fingers and toes), or by both methods of thus consolidating and clarifying first impressions. In brief, we shortly are led to this belief: *viz.*, *when names for succession are exhausted, a name is suggested by and is applied to that identical circumstance.* The New Hollander says *bool-tha-bat* when he meets this circumstance, the Tasmanian says *cardia* when *he* meets it, and so on. Moreover, we ourselves signify by the words *and so on* almost exactly what the primitive signifies by *bool-tha-bat*, by *prica*, or by *cardia*. He means, as *we* mean, that the formal system, till then in force, collapses.

What we would bring out is, then, that primitive minds, no less than those more cultivated, have a mnemonic verbal order-system not more certainly than both have a name to indicate the exhaustion of that system. The name may be *bool-tha-bat* or *prica*, "many," or "multitude," or "infinite number." But in every case the word used is a mark, either of the exhaustion of the system in force, or of the fatigue of him who was using it. It is true that the Arabic notation is so framed as to allow of indefinite industry in counting. This is a manifest convenience. It does not

alter the fact, however, that the elements of that scale are but ten in number, and that no number greater than ten can be inscribed save by repeating one or more of these symbols; nor does it alter the fact that verbal or oral enumeration (except by means of which these numerical symbols can not be intelligibly translated) halts, formally, at least, when we reach a decillion: further progress is purchased by repetition. All this thus leads back to the conclusion already suggested, namely, that bodily mimicry or the gesture language, being anterior to symbolic counting as well as posterior to the exhaustion of his symbols, quite reasonably may be interpreted as responsible for the savage's feeling that *beyond* all his numbers there are others; and we think it would be difficult to prove that the feeling of a Cambridge professor is different. For the feeling is easily analyzed into primitive emotions. At least until some psychologist corrects us, we shall persist in the belief that the feeling of which we speak is occasioned by nothing, as it is translatable into nothing, but the memory of an act of repetition.

## V

It is probably true, it should be added as a postlude to the inquiry we have conducted, that many writers who use the words "infinite number" do so from carelessness merely; and they are thus to be censured no more strongly than many of the contemporaries of Aristotle who, as Gomperz<sup>77</sup> has said of them, "where they really desired to speak only of vast numbers and huge spaces exceeding all possibility of human measurement, used the words 'infinite' and 'infinity' with a careless indifference to the consequences which might be drawn from those terms." Such writers, who offer no formal defence of their terms, invite no formal criticism. Yet, as we have seen, even the in-

<sup>77</sup> Theodor Gomperz, *Greek Thinkers*, 1912, Vol. IV, p. 122.

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formal usage inclines to be dangerous, for it tends to crystallize rapidly into an idiom. And it thus becomes a subtle menace, and an ever-present one, that drives the mathematical analyst into fields as foreign as ethnology. But our excursion therein, if a little irregular, is, we hope, for that very reason, profitable. We should not have entered upon it unless we had believed that the scant attention customarily paid to the concepts of primitive peoples is in inverse ratio to their mathematical significance. Nor do we think that there is any lively prospect of mathematical logicians' putting their science on a reasonably sound footing until they accord more attention than is their wont, not only to their own well-lubricated mental machinery, but also to the mental creakings and groanings of their forebears. The comparison is naturally distasteful; from those to whom it is especially obnoxious we hence are justified in expecting the earliest answer. If it is demonstrably untrue that the savage's word for "many" "plays the same rôle in the language of the savage," as Leland Locke<sup>78</sup> puts it, "as infinity in ordinary parlance," such a demonstration will undoubtedly be forthcoming. Until it arrives, conceit may profitably be tempered with modesty. The ancient Egyptians, we are reliably informed,<sup>79</sup> expressed the number 1,000,000 by portraying a man in a pose of astonishment. Between the number 1,000,000 and the number 20, in the presence of which the negroes of Surinam (perhaps under the instructions of an Ethiopian Cantor) cry *wiri-wiri*, there is some numerical but little psychological difference. And it may be suspected that there is no more difference between our own English cry of *infinity* and the Egyptian ideograph or the Ethiopian polysyllable. Circumspection is enough, at any rate, to induce

<sup>78</sup> L. Leland Locke, in *The Science-History of the Universe*, 1909, Vol. VIII, p. 4.

<sup>79</sup> Moritz Cantor, *Vorlesungen über Geschichte der Mathematik*, 1907 Bd. I, 3. Aufl., p. 82.

the horrid fear that our polysyllable means merely that, although the white man can carry a heavier burden than the black, he also, like his dark brother, can grow weary.

In the literature of mathematical logic such antiseptic labors as we have expended are not wanting. On *a priori* grounds alone, we might in fact have assumed that even restating the problem was unnecessary, since it was adumbrated two thousand years ago by Aristotle, and often since has been iterated and expanded by his followers. We should have fancied that the difficulty was long ago settled. Unhappily, experience has robbed us of that illusion. If the early Eleatics,<sup>80</sup> Aristotle,<sup>81</sup> Hobbes,<sup>82</sup> Locke,<sup>83</sup> Hume,<sup>84</sup> Berkeley,<sup>85</sup> Kant,<sup>86</sup> James Mill,<sup>87</sup> Alexander Bain,<sup>88</sup> Gersonides,<sup>89</sup> Spinoza,<sup>90</sup> Leibniz,<sup>91</sup> and more recently, Sigwart,<sup>92</sup> Vaihinger,<sup>93</sup> Hardy,<sup>94</sup> and Hobson<sup>95</sup>—not to mention such historic mathematical figures as Descartes, Gauss, D'Alembert, Hermite, Cauchy, De Morgan, Poincaré and many others—have criticized the notion of "infinite number

<sup>80</sup> O. E. Erdmann, *History of Philosophy*, translated by Hough, 1910, Vol. I, 36, 2 and 38, 2.

<sup>81</sup> *De Caeo*, Bk. I; *Physica*, Bk. III; *Metaphysica*, Bk. X.

<sup>82</sup> *Concerning Body*, 1656, Ch. VII. Cf. also H. Höffding, *History of Modern Philosophy*, translated by Meyer, 1920, Vol. I, p. 272.

<sup>83</sup> *Essay Concerning Human Understanding*, Bk. II, Ch. XVII, *passim*.

<sup>84</sup> *Treatise of Human Nature*, Bk. I, Secs. 1, 2, 4.

<sup>85</sup> *Of the Principles of Human Knowledge*, Pt. I, Secs. 128-33.

<sup>86</sup> *Critique of Pure Reason*, Div. II, Bk. II, Sec. 2; *Dissertation*, 1770, \*1, n; cf. also, N. K. Smith, A Commentary to Kant's "Critique of Pure Reason," 1918, pp. 483-8, 507-9. *Metaphysical Foundation of Science*, trans. by E. B. Bax, 1883, p. 180.

<sup>87</sup> *Analysis of the Phenomena of the Human Mind*, Ch. XIV, Sec. 4.

<sup>88</sup> *Mental and Moral Science*, 1878, Pt. I., p. 49.

<sup>89</sup> *Milhamot*, p. 345; discussed by I. I. Efros, *The Problem of Space in Jewish Mediaeval Philosophy*, 1917, pp. 99-103.

<sup>90</sup> *Ethics*, Pt. I, *passim*; Letter XXIX (XII) to Lewis Meyer.

<sup>91</sup> *New Essays*, Bk. II, Chap. 17.

<sup>92</sup> *Logic* translated by Dendy, 1895, Secs. 66-8.

<sup>93</sup> *The Philosophy of "As If"*, pp. 52, 62, 73, 236-45.

<sup>94</sup> *A Course of Pure Mathematics*, 1921, p. 112: "There is no number 'infinity'."

<sup>95</sup> *The Domain of Natural Science*, 1923, pp. 121-2; Mr. Hobson, like Mr. Hardy, in his criticism of infinity is not entirely consistent, but a single sentence from this work may be quoted: "I would suggest that extreme caution should be exercised in attempting to extend results of such a theory as that of transfinite aggregates, to a domain other than its original one."

and magnitude" to so little avail, it might indeed appear as if the present age felt some deep-rooted and reasonable antipathy to the past; that the current conspiracy against the opinions of such men rests on the conviction that all of antiquity, besides being incurably old-fashioned, was hopelessly wrong. On no other grounds, assuredly, is it easy to interpret the dispute into which such writers have conspicuously fallen, for their arguments more often are simply ignored than even carelessly answered.

Yet such a conclusion, we realize at once, can not be wholly accurate, when we observe how many favors are today being bestowed upon arguments like Salviati's, themselves more than four hundred years old. The prejudice, it begins to be clear, must be less obvious than we hastily might have imagined. Is it perhaps based on such a passionate affection for the past that only the echoes of prehistoric thought are certain to awaken in modern thinkers a semblance of interest and regard?

The deduction, if presumptuous, is persuasive. There is something fabulous, and distinctly more Homeric than mediaeval, in the modern mathematical realists' acceptance of the infinitely great and their repudiation of the infinitely little.<sup>96</sup>

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W. J. KINGSLAND, JR

<sup>96</sup> As a *Nunc Dimittis* to the exercises just concluded, only two words shall be added *ateleutaureteontic* and *ateleutophthinontic*. We offer these Greek polysyllables, substitutes for the "infinitely" great and small respectively, to those who may find that they chafe under the necessity of using the homely and humble English word, *indefinite*. Since our neologisms possess, in addition to logical nicety, a great share of consonantal magnificence, we have no doubt that they will prove extremely attractive to the ocular appetite of the transfiniteists.

## CRITICISMS AND DISCUSSIONS

### REALISM AND EVOLUTIONARY NATURALISM:

A Reply to PROFESSOR HOERNLÉ

**I**N a recent number of this magazine, \*Professor Hoernlé selected the positions and arguments of Lloyd Morgan and myself for critical analysis from the point of view of idealism. It was almost hinted that the advocates of naturalism were more familiar with their science than with their philosophy. The article was, in truth, a challenge to the naturalistic movement to defend itself against the double charge of dialectical incompetency and lack of awareness of the rightful approach to theory of knowledge. And yet the article was fair and showed familiarity with much of the material.

The contrast of principle and method brought out by Hoernlé is one of those illuminating things which justify controversy. Sharp divisions in philosophy bring out the problems which must be subjected to exhaustive analysis. While in this instance much of Hoernlé's argument could have been anticipated by those who have read his books and have known his adherence to the main theses of Bosanquet, there was yet the advantage of detail. Idealism stands precisely for this and this; and it opposes naturalism on this count and this other count.

The article falls into two parts. The first part is concerned with dialectic or with the general nature of reality and the validity of certain categories, while the second part deals with epistemology. I cannot do better than follow his outline, and I shall quote where the argument demands it.

He begins with a sketch of the first epoch of evolutionism and shows that philosophy has concerned itself more with the *genetic* outlook than with the details of biological theory. He then proceeds to contrast the positions taken by Alexander, Lloyd Morgan, Bergson and myself. On the the whole, Alexander is the thinker who

\* *The Monist*, Oct., 1926.

takes evolution most seriously. He has speculative scope and imagination. "What Sellars values in the evolutionary point of view is the aid it lends to a naturalistic theory of mind, by treating mind as a product of evolution in the context of the physical world."

May I point out in this connection that both Lloyd Morgan and Alexander have a more monistic tinge to their thinking than I have. For them, there is an underlying *nisus* to the whole cosmos and this *nisus* gives a unity which is alien to my more pluralistic outlook. I would refuse to say that I take evolution less seriously than they but would admit that I take it more empirically and distributively.

The first problem is this, Where shall we draw the line between the metaphysician and the naturalist? "Indeed, if it is the mark of a 'metaphysician' to go behind the scientifically ascertainable facts of evolution, whether on the biological or the cosmic scale, in the search for a source or cause (agent) of evolution, then even Lloyd Morgan is a metaphysician, and Sellars's type of theory the only genuine 'naturalism.'" Now I quite accept the reality of some such contrast. In an appendix to his *Emergent Evolution*, Lloyd Morgan was good enough to call attention to the difference in our outlook. But I don't like to be refused the name of metaphysician nevertheless. I am not a positivist who limits himself to scientific facts for I am a realist and a believer in categories. For me, the task of the philosopher is to analyze concepts and principles and to perform a labor of synthesis. It is true that I regard nature as a self-sufficient system, that is, as reality. I see no reason to acknowledge an Activity back of the processes of nature as a patterned complex. But surely such an acknowledgment is not the differentia of a metaphysician!

Since I have not hitherto availed myself of the opportunity given me by Lloyd Morgan in his extremely just contrast between his position and my own, I feel it is only right to refer to it here. My query is this, Is not his acknowledgment of an Activity a hold-over due to several causes? To what extent the traditions of past religion have entered he can say better than I. I have a shrewd suspicion that an acknowledgment such as he works with must have a psychological basis since it does not arise from the objective content of knowledge but is added to it. He seems to admit that the facts known are satisfied by naturalism. But there is a more technical point. Was not past naturalism supposed to be bound up with

agnosticism? And it is well known that agnosticism easily allied itself with theism, witness Spencer. If you don't know reality, why not there of necessity, but is there as a sort of inheritance from his more than a trace of agnosticism in Lloyd Morgan's position. It is not necessarily there, but is there as a sort of inheritance from his period. Note the following quotation from *Emergent Evolution* given by Hoernlé: "The more adequately we grasp the *naturalistic and agnostic position*, the more urgent is the call for some further explanation which shall supplement its merely descriptive interpretation." Does Morgan take descriptive interpretation to be penetrative knowledge? Or, in other words, does he look upon a physical system as an agent? Is the physical world a shell or a self-sufficient reality? For my part, the substitution of critical realism for agnosticism seemed to transform naturalism into a new naturalism which may rightly be called physical realism.

I would reply to Hoernlé, then, that I am a cosmologist and ontologist if not a metaphysician in the literal meaning of that term.

That there are unsurmountable dialectical weaknesses in the admission of emergent novelties appears to Hoernlé a matter of common belief. But I take it that he is speaking here for the objective idealist and that pragmatists and realists have long opposed this opinion. The evolutionist has good company. But, of course, this appeal to support is not argument for either side. And clearly the problem is so basic that I cannot do better than refer to my own detailed analysis of time and change in my *Evolutionary Naturalism*. Having this context in mind, I can point out wherein I deny the validity of his refutation of change.

"Creative evolution," writes Hoernlé, "clearly belies the old principle, *Ex nihilo nihil fit*. For it there is always more in the 'effect' (the later stage) than there was in the 'cause' (the earlier stage)." But it seems to me that this old principle is nothing more than the assertion of the principle of causality itself. It is the demand for a ground, or a sufficient reason, for an event. Taken in this general sense, it stands for the denial of the complete origination of being and against absolute beginning. But novelty in the modern sense is always relative beginning. It arises within a system as intrinsic to it. Let it be remembered that the evolutionist affirms only those novelties which are attached to organized stuff and are inseparable from it. Novelty involves its conditions and antecedents. Surely



Hoernlé would not take this scholastic principle to be intuitive and unambiguous!

Hoernlé makes much of the phrase, "the universe as a whole." Being a pluralist in the general modern sense in opposition to singularism, I take the universe distributively in my thought as a spatio-temporal system. I would not speak of evolution as applying to the universe as a whole in a unilinear way. The universe is for me a stereometrical system in which changes with different directions may go on simultaneously. I would, indeed, admit that change applies to the universe collectively because it applies distributively. I would even admit that changes reverberate all through the universe in some degree, the degree to be determined empirically. But surely this does not imply organic evolution for the sun or for the sidereal system as a whole. There may be evolution in one locality and devolution in another.

With this introduction, let us examine Hoernlé's argument. "The whole cannot change. . . . It cannot change, because any change introduces something that is, and this, *ex hypothesi*, falls within the whole. The whole, if it changes, was not the whole, but something less." But change does not introduce anything new from outside. If the whole has four dimensions, it is of its very nature to alter. Development is within reality and has its conditions and continuity. This difference of opinion depends upon the starting-point, and I claim that the admission of change within the identity of a system is more in accordance with experience. Ultimately, I suppose, the divergence between critical realist and idealist turns on the acceptance by the former of identity of existence as other than logical identity of universals.

## II

Let us now pass to the problem of the nature of knowledge. Hoernlé is clearly right in his opinion that it is basic to naturalism as a philosophy and not merely a scientific generalization. However he implies that the naturalist is more a scientist than a philosopher and has misunderstood and confused problems.

It may be of interest to point out that many American thinkers are seeking to put mind in nature and to avoid the traditional dualisms which have teased philosophy. Hoernlé's charge found me somewhat incredulous since I had felt myself more philosophic in

this matter than Dewey or Woodbridge in that I stressed the importance of epistemology. Had Hoernlé read my *Critical Realism* or my *The Essentials of Philosophy* or the other work in which I devoted my attention to epistemology? In the essays to which he refers I had taken this prior work for granted and the stress was upon the naturalism.

I would put my argument in this way. I have worked both from the side of naturalism to theory of knowledge and from the side of theory of knowledge to naturalism or, if you will, physical realism. And I have found that these two ways of approach re-enforced each other. Thus I quite agree with Hoernlé that "if the account given of knowledge as a phenomenon in nature is such that it throws doubt on our knowledge of nature . . . the argument destroys its own basis."\* Only I have found that the two ways of approach harmonized.

Let me come to detail. "I draw attention, at once, to what is the crucial point, viz., the 'naturalistic' context in which the analysis of mind and knowledge is to be undertaken." But in critical realism my beginning was the context of natural realism, that is, the structure and meanings of experience at the level of perception. In this I have agreed with much of epistemological exploration in this country, England, and Germany. Does natural realism break down under persistent reflection, and does this breakdown lead to idealism or to a more critical type of realism? As a critical realist, I have concerned myself with the second query which he outlines on page 571, namely, an inquiry into the truth-claim of perceiving, thinking, reasoning *as such*. It has been my endeavor to show that traditional representative realism made certain corrigible errors. And I was pleased to find that Professor Hoernlé was struck by the ingenuity and clearness of my correction. But if knowledge consists in the comprehension of the characteristics of an object by means of, and in terms of, characters held before the attention in the act of knowing and if such a claim can be tested by such criteria as consistency, guidance and prediction—and such is the outlook of critical realism as I champion it—wherein am I untrue to the standpoint of epistemology? Is not such knowledge, so tested and interpreted, something which can be sustained by individual minds in responsible relations with their environments? In other words,

\* p. 570.

*knowledge* is inseparably connected with *knowing*, and knowing is a complex act which has its nature and conditions which must be studied empirically. Will the naturalistic context or, if you will, the content of knowledge cast light on the act of knowing? I believe that it will.

In short, I am certain that I have never confused these two questions in my own mind. And the space I have given to both critical realism and to naturalism as separate investigations is my vindication. It is just possible that Lloyd Morgan in his first systematic work kept the two questions very closely together by his way of approach. I am sure, however, that he saw the difference between them.

May I, in conclusion, again express my belief that such frank criticisms as the one I am answering are very valuable in philosophy. There are too few of them. I await Professor Hoernlé's reply with interest. I hope it will take the form of a criticism of critical realism along the lines sketched by Bosanquet, a criticism which I regard as about the best offered and which I have had in mind in my recent formulations. May there not be cognitional identity between content of knowledge and the characteristics of the object of knowledge without existential identity of thought and object? Had the idealist laid more stress on the existential side, upon the act of knowing and the object of knowing, he would, perhaps, have better understood both the nature of knowledge and its limits.

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## REALISM AND EVOLUTIONARY NATURALISM:

A Reply to PROFESSOR SELLARS

THE Editor of the *Monist* has very kindly sent me the typescript of Professor Sellars's *Reply* to my article in the preceding issue, with the offer to publish together with this *Reply* anything further which I might wish to say.

I gladly avail myself of this opportunity, even though I can do so only to a very limited extent. For, even if the Editor had been able to allow me more time, other work in hand, which does not brook long interruption, would have prevented me from responding just now as fully as I could have wished to Sellars's invitation that I should develop a "criticism of Critical Realism along the lines sketched by Bosanquet." In order to do this adequately, it would have been necessary for me to re-read Sellars's books in the light of what he says in his *Reply*, and perhaps the writings of other Critical Realists, too. But this, as I have said, would divert me too completely from other work to which I am committed, and I must regretfully on this occasion content myself with something less.

First of all, I wish to express my appreciation of the manner of Sellars's reply. It is a pleasure to debate with a thinker who meets one's criticisms in the spirit in which they are offered. Indeed, it is more than a mere pleasure in controversial fairness and good will: it is a real help to one's own philosophical thinking, i. e., to the clearer definition of issues and of differences in points of view. I have always delighted in, even when I have not agreed with, the clearness and force of Sellars's handling of philosophical problems, and in arguing with him I feel that our minds *meet* on the points at issue, and that we are not merely staging a shadow-fight at cross-purposes.

And, turning now to the substance of Sellars's *Reply*, I find it to be what I had hoped it would be, viz., a further explanation of his

position in respect to the issues I had raised. Whether he has "replied" to me successfully, in the sense of having rebutted my criticisms, is to me a minor point. What I value most for my own understanding of his position is the fresh light which, for me at least, he has thrown on it in his *Reply*.

Let me run through the points of his reply in order.

1. Sellars denies that he takes evolution "less seriously" than Alexander. Well, I had used the phrase, "taking evolution seriously" in the sense of taking an interest, not only in the past levels, or stages, through which the universe has evolved, but even more in the *future* levels or stages towards which it is evolving, and especially in the attempt to characterize the *next* stage ahead of us (e. g., Alexander's "deity"). In this problem, by his own admission, Sellars is not interested (*cf.*, in his *Reply*, "I would not speak of evolution as applying to the universe as a whole in a unilinear way"). Perhaps he would say—and, if so, I should agree with him—that the problem, so put, is not in the last analysis either soluble or even intelligible. But, at any rate, it is a problem that looms large for many evolutionists, and one into which reflection on cosmic evolution readily falls. Hence, to my remark that Professor Sellars does not "take evolution seriously" in *this* sense, it is no reply on his part to say that he takes it seriously in *another* sense. On the other hand, his contention that his outlook is more pluralistic and empirical than that of Alexander and Lloyd Morgan, is, in itself, both true and important; and it is well to be reminded afresh of this difference.

2. As for being a "metaphysician," I had used the term (as I tried to hint, in the context, by the use of quotation marks) in the sense which is usually given to it by Positivists. Hence I welcome Sellars's explicit dissociation of his position from that of Positivism. I agree most heartily with his own definition of a metaphysician as a "believer in categories," and as one who regards reality as a "self-sufficient system." I think I have as little use as he for the way in which Lloyd Morgan introduces God into his scheme as an activity behind and beyond the evolutionary process. Where, as fellow-metaphysicians, we differ is (a) in that he conceives reality more pluralistically than I do; and (b) in that I do not see my way to identifying the "self-sufficient system" with *Nature*. Of course, "Nature" is a horribly ambiguous term, and everything

here depends on what the term includes and excludes. As I use the term, Nature is something less than the whole of Reality—an "aspect" of it corresponding to a certain point of view. Or, to put it differently, the theory which identifies Reality with Nature is, to me, a synthesis of only certain types of experiences to the exclusion of other types, and, especially, so I suspect, of the religious type. And by "experience," here, I mean what Reality reveals, or discloses, itself as being in certain types of experience, i. e., what in these experiences it is perceived, thought, felt to be. Hence, the issue between Sellars and myself comes down fundamentally to this: *what* experiences (in the sense just laid down) are we using, in our metaphysical theory, and how are we using them, i. e., how do we rank them as clues to the *whole* nature of Reality?

3. In turning to emergence, and novelty, and the principle, *ex nihilo nihil fit*, I come upon the only point on which we are, perhaps, a little at cross-purposes. Of course, I do not claim for this principle, or for any principle which is capable of divergent interpretations, that it is intuitive or unambiguous. And heaven forbid that I should be understood to deny that novelty—itsself an ambiguous term!—"involves its conditions and antecedents." No, where we are, I think, at cross-purposes is in this, that Sellars defends his own position against certain criticisms which, in my mind, were directed, not against him, but against Alexander, Lloyd Morgan, and others who apply, as I understand them, the concept of evolution to the universe as a whole, and construct a progression of stages or levels such that, at each succeeding level (commonly called "higher") a new quality emerges in the cosmos for which in the nature of the preceding ("lower") stage no intelligible explanation is to be found. This, I understand, is not Sellars's view and with his "relative beginnings" and "changes reverberating all through the universe" I have no quarrel. The difference between the view I am criticizing and the view which Sellars holds comes out clearly in a sentence toward the end of the first section of his *Reply*, in which he says that organic evolution on the earth does not imply organic evolution for the sun, and is compatible with devolution elsewhere. By contrast, I understand Alexander, Lloyd Morgan, and others to be speaking, not merely of organic evolution on this planet, but of evolution on a cosmic scale—in fact, of the universe as a whole undergoing evolution. Thus, Sellars is defending himself

against a criticism not aimed at him. But his defence is valuable as bringing out clearly how different in his conception of evolution from that of other evolutionary naturalists.

4. Lastly, as regards knowledge, there are two points, so far as this present discussion is concerned, at issue between us. The first concerns the question which Sellars formulates in the words, "Will the naturalistic context or, if you will, the context of knowledge cast light on the act of knowing?" Sellars believes that it will. So do I, provided we take "acts of knowing" as empirically observable phenomena. But so to take them is, for me, to abstract from their cognition function, or truth claim, i. e., from a consideration of the question how far the "context" (the setting of other phenomena in which we take the facts to occur) is *really* what in these acts we perceive and think it to be. I agree with Sellars that such truth-claims can be, and are, tested "by such criteria as consistency, guidance and prediction." If they satisfy these tests, then we conclude that what we perceive and think is really so. But, such an enquiry into truth-claims seems to me, not only different from, but logically prior to, and more fundamental than, the enquiry which, taking the context to be "known" (i. e., to be really what it is thought to be), now studies the empirically observable relation between this context and acts of knowing considered as empirical events. Of course, I am here merely repeating my original criticism, and in doing so I am merely saying that I do not see how Sellars has met my difficulty. To put this first point in a nutshell: Sellars claims that he has "worked from the side of naturalism to the theory of knowledge, and from the side of theory of knowledge to naturalism," and that these two ways of approach reinforce each other. For me, there is *only one* way, viz., from Nature considered simply *as such*, to Nature-as-known, i. e., to Nature as *an object* of perception and thought, and thence, lastly, to the problem of *truth*, i. e., the problem of whether Nature really is what it is perceived and thought to be—The second point is put by Sellars in the form of a question, "May there not be cognitional identity between content of knowledge and the characteristics of the object of knowledge, without existential identity of thought and object?" I can see why, with his way of approach, Sellars must distinguish these two kinds of identity. Does he, in turn, see why, on my one

way of working back from Nature via Science to Truth, there is no room, or need, for this distinction?

Here, for the reasons given at the outset, I must regretfully leave the matter. But, I do not wish to retire from the discussion without thanking Sellars for having helped to make it—to me, at least—so illuminating.

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