

## THE PHILOSOPHICAL REVIEW.

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### THE PERSONALISTIC CONCEPTION OF NATURE.<sup>1</sup>

#### I.

THE position of this address as interlude in a discussion of mechanism and vitalism<sup>2</sup> has determined its starting point. The first division of the paper will attempt accordingly to trace the metamorphosis of vitalism into personalism and to show that this psychological vitalism antagonizes no justified claim of mechanism. The later divisions of the paper will discuss the philosophical nature and the bases of a personalistic cosmology.

As the preceding discussion has made most clear, the outstanding difficulty in the settlement of the issue between mechanism and vitalism is that each term has been used in radically different senses, often fused but seldom distinguished. It follows of course that one may be mechanist or vitalist in one meaning of the term but not in another of these senses; and it follows, equally, that one may be a mechanist in one sense and a vitalist in another. The three sets of contrasted meanings are, briefly, the following: (1) Mechanism, in the first meaning of the word, describes the universe in structural terms; vitalism, taken in the corresponding sense, conceives the universe functionally, that is, in terms of relation. (2) Mechanism in the second sense is synonymous with determinism; while vitalism

<sup>1</sup> Read as the President's address at the eighteenth annual meeting of the American Philosophical Association held at Harvard University, December 27-28, 1918.

<sup>2</sup> For the papers contributed by the leaders of this discussion, *cf.* this REVIEW, Vol. XXVII, pp. 571 ff. (Nov., 1918).

introduces the conception of an incalculable and unpredictable controlling force or entelechy. (3) Mechanism, finally, is used in the sense of materialism; and vitalism opposes to it either functionalistic vitalism in a new dress or else personalism, psychological vitalism, the doctrine of the real self.

We are especially concerned with the last pair of contrasted conceptions but it is none the less of interest to us briefly to consider the others. (1) The mechanist in the first sense of the term analyzes his phenomena into structural elements, whereas the vitalist views them primarily as organisms, or wholes, each in relation to its own parts and also to other wholes. The mechanist, for example, analyzes the living cell into chemical elements, whereas the vitalist conceives it as an organic unit and studies its function in muscular or circulatory adjustment. Mechanism and vitalism thus defined are, however, not antagonistic conceptions. Nor is the first an exclusively physical, the second a purely biological category. On the contrary, biology must use structural categories and "every principle of chemical science" must apply "to organic . . . substances"<sup>1</sup> since every organism is a carbon compound as well as an animal or plant. And conversely, as Professor Henderson has argued, inorganic as well as organic bodies are incompletely described unless they are described in terms of their fitness and order as well as in terms of their physical and chemical constituents.

(2) In the second sense of each term mechanism and vitalism stand in sharp and irreconcilable opposition. Mechanism, in this meaning of the word, is simply a synonym for determinism, the theory which assumes such a perfectly determinate relation between phenomena that none can vary in independence of the rest. To this conception, vitalism (in its extreme form) opposes the hypothesis of an entelechy or vital entity which, at one point or another in the succession of phenomena, "actively intervenes in the processes of organisms"<sup>2</sup> and interferes in the otherwise determined succession of events. Here then we have a complete disjunction. Mechanism and vitalism thus conceived

<sup>1</sup> L. F. Henderson, *The Fitness of the Environment*, p. 192<sup>1</sup>.

<sup>2</sup> H. S. Jennings, "Doctrines Held as Vitalism," *American Naturalist*, XLVII, 402<sup>3</sup>.

are no longer supplementary conceptions but utterly incompatible points of view: On the one hand the conception of series of phenomena, determined and (so far as they are temporal) predictable. On the other hand, the conception of inscrutable, irregularly interrupting entities and only apparent predictableness and uniformity. Between the two it is evidently necessary to make choice; and unquestionably, in my view, the mechanists score. For the truth is that the experimental arguments against mechanism—Driesch's arguments, for example, from the phenomena of development and restitution—fall far short of proving that "something new and elemental must be introduced" to account for the facts.<sup>1</sup> The indeterministic vitalist, the entelechist as we may call him, is therefore unjustified in his refusal to play the game through. He makes the deterministic postulate of causally related phenomena in the case of physical bodies and cavalierly abandons it when he studies organisms. Science, on the other hand, must postulate a universe of law, and experimental science must postulate a rigid determinism, a future which is uniform with the past.

It is important, however, to emphasize once more the fact that this rejection of entelechistic vitalism involves no break with vitalism in the first, the functionalistic sense already justified. Such functionalistic vitalism is indeed perfectly compatible with deterministic mechanism. Protoplasm, for example, biologically regarded as sensitive or irritable, as well as protoplasm conceived as a carbon compound, may be conceived as determined; or, to take another illustration, the restitution of a cerebral function as truly as a molecular change may be regarded as completely predictable. Such an acceptance, it must be noted, of determinism in science, simply leaves open the philosophical question whether or not the world is ultimately a determined universe.

(3) Mechanism in the third sense of the term is a philosophical rather than a scientific doctrine. It defines all phenomena, psychic as well as biologic, in physical terms, and by physical it means not the molecular or atomic but the non-mental and the

<sup>1</sup> Cf. H. S. Jennings, "Mechanism and Vitalism," this REVIEW, Nov., 1918, XXVII, pp. 585 ff.

non-ideal. Loeb and Warren may be named as upholders of this type of mechanism, though Professor Warren states (in the paper written for our discussion) that the evidence for the theory is not demonstrative.<sup>1</sup> It conceives "conscious experiences" as "identical with . . . neural processes";<sup>2</sup> and unambiguously states that "all human activity, including deliberation and selective volition, is completely mechanistic";<sup>3</sup> and that "this mechanism is physicochemical in type." Mechanism, in this final sense of the term, it should be noticed, though of course it involves both structural and deterministic mechanism, is not in turn implied by either conception. In concrete terms: one may describe phenomena in structural terms and may conceive science in the determinist's fashion, without believing that the world is ultimately non-mental in its nature.

The most effective opposition to this materialistic mechanism comes from what may well be termed psychological vitalism. The psychological vitalist stresses the fact that there exist in addition to whatever elements and unconscious organisms the world may contain, conscious beings who not only secrete and digest and react in response to environment but who also perceive and remember, desire and wish, prefer and choose. To assert that purposes and emotions and memories are phenomena of the same order as vibrations and chemical reactions is, he points out, to misstate or to ignore facts open to immediate experience. For we know by direct observation what we mean by deliberating and willing, feeling and remembering; and we know that we do not mean by deliberation and the rest what we mean by vibrations and combustions. That such physicochemical phenomena may accompany, condition, or even take the place of deliberation, emotion or memory, the psychological vitalist does not deny; he merely insists on the observed fact that consciousness is not identical with the mechanical or the chemical or the electrical phenomena. An emotion of fear, for example, may well be due to a sudden and intense excitation of a

<sup>1</sup> H. C. Warren, "Mechanism versus Vitalism in the Domain of Psychology," this REVIEW, Nov., 1918, XXVII, p. 608<sup>2</sup>.

<sup>2</sup> *Ibid.*, p. 604.

<sup>3</sup> *Journal of Philosophy*, August, 1918, XV, p. 464<sup>3</sup>.

man's first temporal convolutions; but "being afraid of a thunder clap" is a phenomenon distinguishable from this excitation, however dependent on them.

Psychological vitalism, in a word, charges materialistic mechanism with a theoretic prepossession which obscures the plain facts of observation and uncritically identifies interrelated but distinct facts—conscious experiences and neural processes. To quote Jennings: "At least some living things present the phenomena of 'conscious states.' There is practically complete agreement that these are not analyzable into nothing but configurations and motions. . . . If this be admitted it is clear that mechanism in its more inclusive form is not correct for the living; they are not '*nothing but*' configuration and motion."<sup>1</sup>

This comparison of the claims of mechanism and vitalism culminates accordingly in a conception of the universe which, while it is frankly opposed both to vitalism as indeterministic doctrine of entelechies and to functional vitalism viewed as exclusively biological conception, is anti-mechanistic in the sense of being anti-materialistic. It is the psychologically vitalistic, the personalistic, conception of the universe as, in part at least, constituted by related selves. To the study of this personalistic doctrine this paper is devoted. It is however necessary, for the time being, to turn aside from the main purpose of the argument and to explore a dangerous *cul de sac* into which brilliant adventurers are tempting us. The alluring by-path against which I would warn you is that of so-called teleological vitalism, ordinarily adopted as an idealistic protest against materialistic mechanism. This view is represented in our discussion by Professor Hoernlé,<sup>2</sup> and is obviously a form of functional vitalism with stress on the purposive type of the relations of organisms to their environment. According to the teleological vitalist, "life cannot be formulated in physico-chemical terms." On the contrary, "the phenomena of life" need to be dealt with first and foremost in their own "terms." And these prove to be 'teleological' terms—terms of 'value.' "Wherever," Mr. Hoernlé

<sup>1</sup> *Op. cit.*, this REVIEW, Nov., 1918, XXVII, p. 594<sup>3</sup>.

<sup>2</sup> Hoernlé, however, eschews the term vitalism and speaks of teleology.

says, "the facts challenge us to say not merely that *B* is the effect of *A*, but that *B* is the *reason why* or *that for the sake of which* *A* exists or occurs, there we have the *immanent purposiveness* of living things."<sup>1</sup>

As they stand, these statements may not seem to contain a challenge. For, on the one hand, value and purposiveness, superficially regarded, may appear to be cases of the functional relations already admitted as categories of scientific description,—an interpretation favored by the fact that the arguments put forward for teleological vitalism are mere repetitions of the old contention that science needs functional as well as structural categories. And though, more closely considered, value and purposiveness turn out to be characters radically different from organic relations, they seem, from this more adequate point of view, to be personal categories; and accordingly, teleological vitalism seems to be a mere corollary or application of personalism. Against this last interpretation, however, the teleologists vociferously protest. "When I speak of teleological concepts," Hoernlé says, "I do not mean a design, or plan, or purpose or desire consciously entertained by any mind, be it of God, of man, of animal, or of plant."<sup>2</sup> The language of teleology must, indeed, he holds, be purged of these associations since they make it "unwelcome to scientists, and are not required by the facts."<sup>3</sup> Teleological vitalism is, in other words, formulated in opposition as much to personalism as to materialistic mechanism. The personalist, accordingly, must turn critic of this teleological form of vitalism. And his criticism takes shape somewhat as follows: Like Philonous, he insists that terms shall be either defined or shown to be indefinable. But he seldom, if ever, finds, in the pages of the teleologists, even an attempt to state what they mean by purposiveness, value, or the relation of means to end. Illustrations he finds in plenty of purposive actions—references to the bee seeking her home, the moth laying her eggs, the animal devouring food—but he discovers no efforts to analyze and delimit purposiveness and value. Evidently the

<sup>1</sup> "Mechanism and Vitalism," this REVIEW, Nov., 1918, XXVII, p. 643.

<sup>2</sup> *Ibid.* p. 632<sup>1</sup>.

<sup>3</sup> *Ibid.* p. 642<sup>2</sup>.

teleologist accepts the terms at their face value as irreducible data. Against this conception of value and purposiveness as indefinable and ultimate but non-conscious characters dominant in the organic world, personalism protests that value and purposiveness, far from being further irreducible, are in fact definable in necessarily personal terms. 'Purposive' means 'pertaining to purpose' and purpose implies 'purposing,' the experience of a 'purposer.' Were there no purposer there could be no purposing, and hence no character-pertaining-to purposing, that is, no purposiveness. Similarly, value is what is valued, that is either wished or willed by a valuer. Without such a valuing self the highly abstract conception of value—the character common to all valuing—would be absolutely meaningless.

In comment on this conception of value, teleological vitalists admit willing and wishing as one class of values, but they protest that countless purposive actions—food-getting and egg-laying, for example—have not been preceded by any conscious design. Here, the teleologist exclaims, are clear cases of unconscious purposiveness or value. But this protest naïvely ignores the on-looking scientist for whom alone the terms 'beneficial,' 'function' and 'value'—so far as they do not belong to somebody's immediate experience—have meaning. The unpurposed egg-laying has indeed value. But value for whom? The question is inevitable, for the word is a transitive verbal adjective. And if we abstract from the possible but unproved satisfaction of the reproduced living being, maintenance of structure is beneficial only from the standpoint of the scientist's interest in a regularly and progressively developing world.

The neo-teleologists, in a word, in their "anxiety not to compromise themselves" with the old-fashioned anthropomorphists, have committed what Hylas describes as "a pleasant mistake enough." As they were thinking of an unpurposed value, where no one was desiring it, they believed that they were conceiving a value as existing unpurposed, not considering that they themselves were valuing it all the time.

The personalist is, accordingly, justified in his rejection of teleological vitalism as recourse from materialism—in his protest

against abstract values, which by hypothesis nobody values, against the means and ends which are means and ends to no one, against the purposivenesses which are in no sense purposes! Teleological vitalism, he insists, reduces to psychological vitalism. There are values, there is purposiveness—but only because there are conscious beings who value, that is wish or will or enjoy, and who purpose. In a word, teleologism is merely an abstraction from the psychological, or personal, vitalism to which the argument has led us. Even those purposive actions which are unpurposed by the actors imply the existence of selves. The real world, therefore, the world of physical and chemical substances, is certainly also a world of selves.

## II.<sup>1</sup>

The conception of the world, achieved in the first division of this paper, as made up in part, at least, of conscious beings, or selves, is not yet a fully personalistic conception of nature. For a completely personalistic doctrine must maintain, not that selves exist along with other real though non-mental beings, but that the world consists wholly of persons, or selves; and that so large a part of the world is accounted impersonal simply because the selves in whom it consists are undistinguished and uncomprehended. This paper espouses the fully personalistic conception of the universe as consisting in innumerable selves, or persons, of different levels and degrees, more or less closely related to each other. To establish this conception would demand the proof first (1) that supposedly non-mental beings are really mental; second (2) that mental beings are inevitably personal; third (3) that more than one self may be known to exist. In negative terms, the thorough-going personalist, before he has a philosophic right to his cosmology, must successfully maintain first (1) idealism against both dualism and materialism; second (2) personalism against ideistic idealism; third (3) a non-solipsistic, a non-subjective, form of personalism. The limits of this paper prohibit the adequate carrying out of any part of this program, but the following may serve to suggest the main outlines of the personalistic argument.

<sup>1</sup> Part II was omitted from this paper as read.



1. The personalist as idealist begins by protesting against the common practice of dismissing his case before it is heard—in other words against the naïve assumption that the physical world as we know it by observation is material in the sense of being non-mental and independent of mind. The idealist, like every other metaphysician, unreservedly accepts at their face value facts of every description—facts such as redness, hotness and oscillation as well as facts such as likeness, connectedness and uniformity. He therefore begins where “common sense and science . . . begin, without any doubts concerning the reality of the world.”<sup>1</sup> Whoever, however, identifies the statement that the physical world is real with the assertion that it is *ipso facto* non-mental is not, the idealist insists, arguing against idealism; he is simply postulating or assuming the conclusion which the idealist insists on putting to metaphysical test.

By idealism is here meant frankly what is sometimes called mentalism, the doctrine that any reality—electron, brain, protoplasm as well as self or purpose—is mental.<sup>2</sup> Stripped of unessential features<sup>3</sup> the argument for mentalism emphasizes the fact, never disproved nor seriously disputed, that the only unchallengeable assertions about alleged material, *i. e.*, non-mental, reality, are assertions of somebody’s way of being conscious. I say’ for example, that the sea is blue; you insist that it is green; my only certainty, but an impregnable certainty, is that I have the experience which I call seeing blue, not the experience which I call seeing green!

This argument, oddly enough, has never been better stated than by that peculiarly omniscient neo-realist, Bertrand Russell. In the third lecture of his *Scientific Methods of Philosophy*

<sup>1</sup> J. E. Creighton, “Two Types of Idealism,” this REVIEW, 1917, XVI, p. 525. Cf. pp. 533<sup>3</sup> ff.

<sup>2</sup> This conception of idealism is sharply opposed to the ‘objective idealism,’ as it is sometimes called, which consists in the “direct acceptance of things as having value or significance.” Cf. Creighton, *op. cit.*, p. 515<sup>2</sup>.

<sup>3</sup> In the face of contemporary criticism it is important to remind the reader that no serious idealist from Berkeley downward rests his case either (1) on the primary-secondary qualities argument or (2) on the argument from illusion. The first of these, the idealist is well aware, may cut either way. (Cf. Berkeley, *Principles*, XV, and May Sinclair, *A Defense of Idealism*, p. 175<sup>2</sup>.) The second he regards as decisive against many forms of realism, not as conclusive for idealism.

for example, in the effort to tell "what is known . . . without any element of hypothesis," Russell says definitely: "What we know by experience," in viewing a table, "what is really known, is a correlation of muscular and other bodily sensations with changes in visual sensations." This is, in its essence, precisely the basal position of idealism. Russell, to be sure, at once supplements his "really known" sensations by extra-mental sense-data.<sup>1</sup> And other neo-realists cavalierly dispose of the argument that unchallengeable statements about physical objects are all in mental terms by the remark that some unchallengeable assertions are trivial.<sup>2</sup> They do not, however, offer any proof that the idealist's unchallengeable assertion belongs with the trivial certainties. Accordingly, the idealist is still free to urge his fundamental thesis. If, he insists, the attempt to reach irrefragable certainty about alleged non-mental reality inevitably issues in mental and not in non-mental certainties, the philosopher is in honor bound first, to stop identifying the physical with the non-mental and second, to set down the alleged non-mental as, at the least, negligible for plain man and philosopher alike.

2. The personalist has next to argue for personal idealism. The idealistic conception of the world as mental does not, in the view of all philosophers, imply that it is also personal. On the contrary, a group of idealists—impersonal idealists, ideists or phenomenologists as they are called—follow Hume in conceiving the universe as through and through mental but impersonal, as consisting of a succession of mental contents or processes, psychic items or states. According to Karl Pearson and Ernst Mach, for example, well-known representatives of the school of mechanistic idealists, the world of nature with which science deals reduces to the ordered succession of ideas in the scientist's mind; and the laws of nature are the scientist's way of grouping and predicting phenomena. Pearson, for example, describes matter as a "union of immediate sense impressions with associated impressions."<sup>3</sup>

<sup>1</sup> His only argument, so far as I can find, for the existence of the sense datum, is based on the involuntariness of sensation. (*Op cit.*, p. 76.) The argument is indecisive since the involuntariness is stateable in personalistic terms also.

<sup>2</sup> Cf. *The New Realism*, pp. 19-20. (Macmillan Co., 1912.)

<sup>3</sup> *The Grammar of Science*, second edition, p. 75<sup>a</sup>.

The personalist has therefore to justify his rejection of ideism, this conception of the world as a great complex of succeeding mental states. The basal objection to the theory is that, thoroughly understood, it implies the very conception which it opposes. For when, accepting at its face value the ideistic theory, one asks the meaning of the statements: "This or that nature object is a complex idea"; "the course of nature is a series of ideas;" "the law of nature is an experienced routine"—one finds that there are no really, independently existing ideas, that an idea, that is, a mental experience, always is part of a self, who has the idea, who experiences. In a word, the selfless or impersonal idea, like the impersonal value, is an abstraction from the concretely real self. The world, as mental, inevitably is a world made up not of ideas, or mental processes, but of selves.

The personalist is well aware that the foregoing paragraph constitutes no argument. Indeed, in the nature of the case, no argument is possible. As ultimately real, the self cannot be proved through being bolstered up by something more real; it is simply discovered, immediately known. Yet the personalist is not without resource in face of any Hume, past or present, who protests naïvely: "When I enter into myself . . . I can never catch myself."<sup>1</sup> For such a protest overlooks the significant fact, stressed by Augustine and Descartes,<sup>2</sup> that self is the one reality whose existence can neither be denied nor doubted, since neither denial nor doubt are possible without a self to do the denying or the doubting. I may question or deny the existence of God or of my brother or of my breakfast without thereby implying the existence of any one of them, but as soon as I question or deny myself—*ecco*, I myself questioning or denying! The personalist has accordingly a right to assert the existence of the self which experiences and "has ideas."

3. Even with this conception of the world as personal we have

<sup>1</sup> *Treatise of Human Nature*, Bk. I, Part IV, Section VI.

<sup>2</sup> Cf. Augustine, *De Libero Arbitrio*, II, 3, *De Trinitate*, X, 10, and XV, 12, 26; and Descartes, *Méditations*, II, *Principles of Philosophy*, I, 7. Descartes's self-doctrine is too often confused (by himself as well as by his critics) with his more mediæval conception of the soul.

not, it must next be pointed out, achieved the fully personalistic conception of the world as a society of interrelated conscious beings, or selves. For directly in the path toward such a conception looms the specter of solipsism: the conception of the world as personal, to be sure, but as narrowed to the confines of myself, the only undoubtable, immediately known self. Thus conceived, solipsistic or subjective personalism as a nature philosophy differs little from impersonal idealism, or ideism. For if only I myself can be metaphysically known to exist, then the physical universe—plants and stars and evolving forms of life—must reduce to a mere system of ideas in a single mind—my mind, the mind which (on this hypothesis) constitutes reality. Now, according to the realistic critic,<sup>1</sup> solipsism is the only valid form of idealistic personalism. My certainty of the self, he reminds me, is rooted in my introspective discovery that I cannot doubt my own existence; the argument against alleged extra-mental reality pivots on the fact that what I know is my experience. Obviously, the critic insists, the only certainty here is that of myself, of the solitary me, and of my individual experience. Were it necessary to accept this conclusion each of us would accordingly be shut up to the philosophic conception of the universe as a system of his own ideas exclusively.<sup>2</sup> A careful consideration of this criticism would, therefore, be the logically next step of this paper. But limits of time prevent this undertaking save in schematic outline. In brief: the personalist holds that the object of my alleged knowledge alike of other-self and of thing is *both* my own experience, or idea, and *something-beside*. The personalist justifies himself in asserting the existence of this something-beside-me on the ground that I directly experience

<sup>1</sup> Cf. G. E. Moore, *Proceedings of the Aristotelian Society*, 1905-06, VI, "The Nature and Reality of Objects of Perception"; cf. also, *The New Realism*, 1912, pp. 146<sup>2</sup>-147<sup>1</sup>. It is not without interest to add that, some two hundred years before the rise of neo-realism, Berkeley put a closely similar argument into the mouth of Hylas. Cf. the third of the *Dialogues between Hylas and Philonous*, the passage beginning: "Answer me Philonous. Are all our ideas perfectly inert beings?" (The personalist agrees with the realist in discrediting Philonous's handling of the situation.)

<sup>2</sup> Most neo-realists, on the other hand, unjustifiably imply that to prove idealism solipsistic would *ipso facto* discredit it.

myself as a limited, hampered self—limited in my perceptual experience to just these special seeings and hearings, and limited also in my personal disappointments and in my baffled purposes. But a direct experience of being limited is, as Fichte long ago suggested, a direct (not an inferred) knowledge of something existing beyond the limit. When, therefore (to repeat the old illustration), I perceive the sea as blue, my only unchallengeable certainty *about the blueness* is indeed my own consciousness, but I have also the certainty of being limited to just this sensation of blueness; and this direct experience of being limited includes in it the knowledge of a something-besides-me. But this conclusion constitutes the first step only of the personalist's refutation of solipsism. He has still to show reason why the something-besides-me must be conceived as invariably personal. And here the pluralistic and the absolutistic personal idealist part company. Both find that I know objects in some sense beyond myself. The pluralist asserts that I could not know these objects unless they were essentially like me, and that non-mental and impersonal objects would be unknown.<sup>1</sup> The absolutist, on the other hand, argues that knowledge implies identity of knower and known; that I know the Absolute by being identically a part of Him; and that I know other selves in so far as they, like me, are genuinely though partially identical with Him.<sup>2</sup> Both pluralist and absolutist, however, argue that knowledge is inexplicable unless its objects are personal.

Herewith, the second division of this paper reaches the end toward which it has hastened. It has indicated, very summarily, the outlines of the argument at the base of the conception of the universe as completely personal. No resentful hearer or reader can realize more keenly than I the indecent brevity and consequent inadequacy of this statement of the grounds of a personal-

<sup>1</sup> Cf. J. Ward, *The Realm of Ends*, Lecture I, pp. 10 ff., and *passim*; C. A. Richardson, "Scientific Method in Philosophy and the Foundations of Pluralism," this REVIEW, 1918, XXVII, pp. 233 ff., 267 ff.

<sup>2</sup> Cf. J. Royce, *The World and the Individual*, Vol. II, Lecture IV ff.; B. Varisco, *The Great Problems*, pp. 16 ff., 292 ff.; M. W. Calkins, *The Persistent Problems of Philosophy*, pp. 410 ff. There is need for a fuller statement of the absolutist view and a more critical discussion of its difficulties.

istic cosmology. The main concern of this paper is, however, with the consequences of the doctrine if true, not with the arguments to prove it true. I propose, therefore, boldly to ask you, whether or not you are satisfied with the metaphysical grounds for the conception, to assume, if you do not believe, that the universe is personal and not confined to the limits of a single self. The way is then open for the discussion of the nature of the personalist's world.

### III.

The third division of this paper is devoted to the working out, in rough fashion, of certain details of an unsolipsistic but personalistic nature philosophy, a conception of the universe as constituted by an indefinitely great number of interrelated selves. The phrase 'great number of selves' is used without prejudice to the possibility, which preceding pages have suggested, that the many selves may turn out to be members of an all-including Absolute Self. It matters little to students of nature philosophy whether or not this absolutist doctrine is correct. For the Absolute of modern philosophy is a respecter of persons. Therefore even if the many selves are parts of the One Self they will retain both their personality and their relation with each other through the Absolute.

Fundamental to such a sketch of personalistic cosmology is a delimitation of the term self. The self, in the first place, is not the entelechist's soul: that is to say, the self need not be conceived as having inherently a decisive influence on phenomena; it has not by definition the power to intrude itself, as ultimate cause, among phenomena.<sup>1</sup> Self, in the second place, is not to be confused with soul, in Locke's sense of the term: that is to say, the self is no underlying substratum, no unknown substance, no "something I know not what to support ideas,"<sup>2</sup> but is a directly experienced reality. To turn from negative to positive: By

<sup>1</sup> This unqualified denial of the propriety of *defining* the self as an essentially potent being, a controlling influence, is not of course a dogmatic denial of the possibility of later proving the self possessed of such a power. This is in truth a question to be determined by argument. What is denied is the right to define the immediately observed, known self as a power.

<sup>2</sup> *Essay*, Bk. II, Chapter 23, 15.

self is meant a being essentially similar to that which any man means when he says 'I' or is conscious of 'myself.' The self is, strictly speaking, indefinable since there exists nothing else of its class from which to distinguish it. The self is, none the less, a complex being<sup>1</sup> possessed of at least the following characters: relative persistence, or identity, which need not mean immortality; change, or growth; uniqueness, that is, irreplaceableness, or individuality; and relatedness to its environment.<sup>2</sup> These characters of self, according to the fully personalistic conception, are directly experienced and not inferred. And it cannot be stated too unequivocally that the personalist in asserting that the world of organic and inorganic nature is, in concrete reality, a world of selves must use the word self with the psychological meaning gained through introspection, that he must mean by self a being essentially similar, in its nature, to himself. Otherwise cosmological personalism becomes logomachy, mere metaphorical play on words.

The conception of the world of nature as a world of genuine selves does not, however, preclude the possibility or probability that these selves differ vastly from the human selves and from each other. One empirical consideration, later to be discussed in more detail, points directly to such differences. We believe ourselves to communicate directly with other human selves—to put questions to them, to be hailed by them and to share their experience. Such communication with inorganic nature, with plants, and with many classes of animals is either lacking or, at the least, is uncertain and unsystematized. The world of nature is accordingly in great part, to use Royce's phrase, an uncommunicative world.

<sup>1</sup> The position: "Either consciousness is a complex entity, not fundamental but definable in terms of simpler entities . . . or else consciousness is fundamental and simple," seems to be based on an illicit conversion of the proposition: "The elemental is indefinable." This is, of course, true, but it certainly does not follow that "the indefinable is elemental." (Cf. E. B. Holt, *The Concept of Consciousness*, p. 73<sup>2</sup>.)

<sup>2</sup> On the conception of self, cf. M. W. Calkins, *A First Book in Psychology*, Chap. I and Appendix, Sec. I. (For bibliography cf. pp. 282 f.) "The Self in Scientific Psychology," *American Journal of Psychology*, 1915, XXVI, pp. 495 ff.; *The Persistent Problems of Philosophy*, fourth edition, pp. 407 ff.

From this preliminary statement of the basal principles of personalistic cosmology we must turn to detail and to argument. The personalist has first to show the psychological likelihood that beings exist, far less complex than we and yet significantly described as selves. That the higher vertebrate animals are conscious beings is commonly admitted. The question is whether we are to think of earthworms and beetles, of bacteria and amœbæ, of pebbles and lichens as selves. Leibniz was first among modern philosophers in the attempt to establish the possibility of the extra-human self by emphasizing in our human experience, the wide difference (1) between inattentive and inactive and attentive, active consciousness; (2) between simple and complex; (3) between sensuous and non-sensuous consciousness. It is essential to our purpose to study these conceptions and to begin by making them vivid to ourselves. Let each of my hearers, therefore, using Leibniz's own method, contrast himself in the alert, interested, competent handling of an intellectual problem with himself in the first moments of waking from a very sound sleep, utterly dazed and unaware of where he is or what he has to do, as little recognizing a past as anticipating the future. In this sleepy state he is an inattentive, sluggish, undiscriminating, inactive self; in the other case he attends, distinguishes, compares, relates, advances, controls. Between the two experiences are innumerable grades of attentiveness, weak and strong, dispersed and narrow; innumerable variations in the importance and complexity of non-sensuous, thought-factors of experience; innumerable gradations between utter passivity and complete self-initiative. The personalist appeals to this incontrovertible experience of widely different levels of our own consciousness as confirmation of the possibility of selves of many grades or types. There well may be, he insists, selves who are even more inactively and inattentively conscious than we are in the sleepest stage which we can catch by retrospection, selves who remain at this inactive level from which we have risen, though to be sure we periodically fall back into it. These would be the relatively stable selves, which constitute what we call the inorganic world, which we conceive as unconscious mainly



because there seems no hope of getting them to talk to us. And corresponding to the successively more attentive, active, discriminating levels of our own consciousness would be other types of selves—until one reached the higher vertebrates whom, implicitly or explicitly, people already treat as selves even if they do not so conceive them.

Up to this point, in our attempt, following Leibniz's clue, to attain a conception of non-human nature-selves, on the analogy of our own widely varying types of experience, we have scarcely touched upon the temporal distinction, emphasized both by Leibniz and Ward and by Royce, which may mark off one group of selves from another. In its genuinely sleepy state every self is unaware of past and future; so far as its own present consciousness goes, it is like Melchisedec "without father, without mother, having neither beginning of days nor end of life." It furnishes, therefore, the basis in human experience for Leibniz's simple self (his naked monad), *mens momentanea seu carens recordatione*,<sup>1</sup> the momentary, unremembering, unrecognizing self. At the lower extreme from us, according to this view, are, or may be, momentary selves, selves whose consciousness of change does not rise to the contrast of past with present and future. They are thus selves of a moment, unremembering selves. And between them and us would be, as already suggested, an ascending scale of selves roughly rated by their capacity to recall and recognize the past and to anticipate the future. Royce's characteristic contribution to the conception of selves as temporally distinguished is well known and may best be stated in his own words. It is that of the varying time-spans. He supposes, in common with all personalists, that "when [we] deal with Nature [we] deal with a vast realm of finite consciousness of which [our] own is at once a part and an example." He next points out that "our consciousness, for its special characters, is dependent upon a fact which we might call our particular Time-Span. If we are to be inwardly conscious of anything, there must occur some change"—not too fast nor too slow—"in the contents of our feel-

<sup>1</sup> *Theoriae motus abstracti Definitiones*. Gerhardt edition, IV, p. 230. Cf. Ward, *The Realm of Ends*, pp. 255 ff.

ings. What happens within what we describe as the . . . thousandth of a second necessarily escapes us. On the other hand, what lasts longer than a very few moments no longer can form part of one conscious moment to us. But suppose that our consciousness had to a thousand millionth of a second or to a million years of time the same relation that it now has to the . . . length in seconds of a typical present moment. Then, in the one case, we might say: 'What a slow affair this dynamite explosion is.' In the other case, events, such as the wearing of the Niagara Gorge, would be to us what a single musical phrase now is, namely something instantaneously present. . . . This simple consideration," Royce at once applies, suggesting, for example, that " a material region of the inorganic world would be to us the phenomenal sign of the presence of at least one fellow-creature who took, perhaps, a billion years to complete a moment of his consciousness, so that where we saw, in the signs given us of his presence, only monotonous permanence of fact, he, in his inner life, faced momentarily significant change."<sup>1</sup>

The special use which Royce makes of this hypothesis, in the discussion of evolution, does not here concern us. We have simply to emphasize the fact that actual experience of the varying time-span justifies the hypothesis of still greater variation and thus the conception of selves with time spans so widened or so narrowed that we may even fail to know their existence. This speculative conception enlarges that gained by direct observation of our own inattentive, inactive, unthoughtful moments—the conception of the relatively simple, sensuous, stable, unremembering self.

The immediately preceding pages have mainly tried to show that the conception of non-human selves makes no assumptions which are not verifiable on some level of human consciousness. In other words, emphasis has fallen on the essential likeness of the human to the non-human self. In the pages which follow, the stress will fall upon the different groups of non-human selves and on the methods of distinguishing them from each other. When the superhuman self, whether God or Absolute, is disre-

<sup>1</sup> *The World and the Individual*, II, pp. 227–228.

garded, it is found, as already suggested, that the non-human selves are most readily grouped, according as they are from our human standpoint (1) intercommunicating, or (2) communicating, or (3) uncommunicating selves—in other words, according as they either signal to us and are signalled back to, or as they signal to us without being aware of us or of our message, or, finally, as they are totally uncommunicative. It will be profitable to dwell for a moment on these distinctions and, in particular, to stress the difference between intercourse, or intercommunication and mere communication.<sup>1</sup> Evidently, when any self (A) is in intercourse with another (B), A must be aware (conscious) of B and of B as conscious in his turn of A. Furthermore, since by self is meant *inter alia* a changing being, that is, a being of successive experiencings, this mutual awareness carries with it an awareness by A of B's changing experiences and by B of A's changes. Complete or adequate intercourse, finally, must imply a correspondence between these successive changes in A and B. Mere *communication* of A with B may be said to occur whenever A modifies B's experiences, but full *intercommunication*, or intercourse, implies the mutual relation and the awareness of it.

From this statement of the principle of classification, we turn back to the problem of grouping the non-human selves. To begin with: everybody will agree to describe the higher vertebrates as intercommunicating selves. In this case we have strong empirical (if not metaphysical) evidence of their intercourse with each other and with ourselves. Nor is there any conclusive reason for limiting the group of intercommunicating selves to the vertebrates, to the exclusion of the higher anthropoids, for example. At the other extreme are the non-human selves which make up what we call the inorganic world. We become aware of their presence through such of our sensational experiences as we do not refer to the communicative selves, men or animals. Suppose, for example, that I have at one and the same time, a great complex of sense-experience—visual, auditory, kinæsthetic—not attributed to my own initiative. Part of this

<sup>1</sup> Royce seems not explicitly to recognize what I have called communication. By 'communicative' he probably means 'intercommunicative.'

experience I designate as awareness of voices, gestures, and faces; and this part I regard not merely as indication of the existence and presence of other selves but as disclosing to me their changing experience. Another part, however, of my sensational experience, the perceptual awareness, for example, of hardness and grayness or of blueness and rippliness, I describe as consciousness of pebble or of lake. But in this case I am conscious of no give-and-take of experience between pebble or lake-self and me; I find no mutually varying series of changing ideas which enables me to designate or to 'feel' just this complex of sensation, as sign of a communicating self. I cannot, in other words, regard either one of these sensation complexes as indications of a single, individual pebble-self or lake-self with the assurance with which, when I am conscious of a gesturing, talking human body, I regard it as a sign of another self. It is true that, on the strength of my personalistic philosophy, I believe that my pebble consciousness indicates the presence of personal being. I have, however, no way of knowing that the pebble is, like my own body, the 'phenomenal sign' of a *single* non-human self. It may, rather, indicate merely one part or aspect of a non-human self, or again, it may indicate a whole group of such selves. In other words, the pebble may correspond not to a human body, as experienced whole, but to one organ or fragment of a body or else to a group of bodies.

We have next to consider the status of the vast numbers of living beings, lower in the scale than the intercommunicating non-human selves, yet widely different, it seems, from the stolid inorganic world.<sup>1</sup> We have, apparently, no intercourse with them, yet the more we know about them the more we incline to conceive them as conscious beings. For experiments on animal behavior show that animals of every class may learn by trial and error, in other words, may adapt their reactions to their environment. Not merely insects and crustacea but infusoria—the stentor of Jennings's classical experiments,—have learned both to vary response with changing environment and even to

<sup>1</sup> Merely in the interest of brevity, the following paragraph omits any reference to the possible plant-selves.

alter their reactions to a fixed environment.<sup>1</sup> Now this acquired capacity to vary reactions to a fixed environment is the most significant indication of consciousness. By most biologists the stentor which alters its response to a harmful stimulus and the crab which learns to shorten its progress through a labyrinth are judged to be conscious animals, that is, selves. And we may go even further. Not only is an adaptively reacting animal probably conscious; it is also in a very literal sense communicating with the observer, informing him, by its forward or backward movements, let us say, of its changing experience. On the other hand, nothing suggests that the observer makes the animal aware of his own onlooking experience. The animal is, in other words, a communicating, but not an intercommunicating self; it gives but does not take. Thus experimental observation justifies the recognition of a group of communicating, non-human selves midway between the totally incommunicative and the obviously intercommunicative nature-selves.

One difficult topic suggested in the preceding pages must at least be touched on.<sup>2</sup> The distinction of the uncommunicative from the communicative selves has more than once involved a reference to the human body. These casual references have now to be amplified, and the relation between self and body to be stated in personalistic terms. (It should be emphasized at the outset that the personalist does not share at all in the spiritualistic dualist's concern to show the independence of some aspect of self—memory or emotion or will—from the body.<sup>3</sup>) For, to the personalist, brain and body are themselves mental, and "the experience of the body is the body."<sup>4</sup> Looked at *en bloc* and uncritically my body may be described as follows: It is a peculiarly ubiquitous object—in the querulous words which the little

<sup>1</sup> "Studies on Reactions to Stimuli in Unicellular Animals," *American Journal of Physiology*, 1902, VIII, pp. 23 ff. Cf. *Behavior of the Lower Organisms*, 1906, Chapter X, especially pp. 175 f.

<sup>2</sup> The paragraphs which follow, to the end of this section, have been added to the paper as read.

<sup>3</sup> It is curious to find Bergson, of all men, playing into the hands of these dualistic spiritualists by the teaching that memory cannot be cerebrally localized. Cf. *Matter and Memory*, Chap. II.

<sup>4</sup> D. H. Parker, *The Self and Nature*, p. 86<sup>a</sup>.

girl applied to God, it is always "tagging me around"; and it has two important aspects: (1) In the first place, it is not only, like all physical things, a public object, open to other people's observation as well as to my own, but it is a mediating, instrumental sort of object, serving to indicate my existence to other people—in Royce's words, serving as 'phenomenal sign' of me.<sup>1</sup> (2) My body, in the second place, according to the uncritical observer, is not merely a visible and audible and tangible object, perceived by other people along with me. Rather, it is also a source of unshared organic sensation, the awareness, for example, of stabbing pain, of palpitation, or of bodily vigor. This description of the body in terms of the every-day observer has now to be philosophically interpreted. In the terms of the impersonal idealist, plainly, my body is a persistent complex of sensations, visual and auditory and contact sensations, on the one hand, kinæsthetic and visceral sensations, on the other. The personalist goes further. He points out, first, that sensation is somebody's sensing and that accordingly 'complex of sensations' means somebody's complex sense-experiencing. In the second place, he reaffirms the plain man's distinction of public from private object, that is, he describes my visible, tangible, and audible body as complex experience shared by me with the other selves who are said to see, hear, and touch me. Finally, and once more in agreement with everyday observation, the personalist describes my body as that part of other people's shared sense experience which suggests to them the existence, the presence, of *me*, a self with individuality of its own. (And conversely, the part of my sense experience which I call "consciousness of other human bodies" suggests to me the presence of other selves.)<sup>2</sup> My body as directly experienced is, therefore, according to the

<sup>1</sup> It should be noted that these are only relative distinctions of the body from other physical objects. There are other persistent ways of experiencing—the consciousness of clothes and of home, for example. And there are other instrumental ideas, mediating experiences. The experience, for example, indicated by the words "using a microscope" is essential to my having that other experience designated as "seeing the capillaries of a frog's circulatory system."

<sup>2</sup> For the sake of brevity, no reference is made to the consciousness of my body as phenomenal sign of me which, in addition to my direct introspective awareness of myself, I possess.

personalist, a complex and chiefly sensuous experiencing—in part, my incommunicable experience and in part the shared experiencing of many selves which serves as the ‘sign’ of my presence.

But this description of the human body is still incomplete. It has left out of account those portions of my body which are not, and need never be, objects or parts of any one’s direct experience. For in addition to (1) my body as seen, touched and heard, and in addition also to (2) my body as ‘felt’ by me alone, in a toothache, for example, there remains (3) my body as inferred object—my body, as containing spleen and liver and cerebral ganglia, for instance. I infer the existence of some of these organs when I have watched the cook drawing a chicken and of still others when I have studied the diagrams in a physiology book or have dissected a cat.<sup>1</sup> By the surgeon when he operates, or by the histologist, still other organs—the adrenal glands or the white blood corpuscles—may be directly observed. Yet neither adrenal glands, nor blood corpuscles, nor brain, nor liver can be described (in the way in which my *directly experienced* body is described) as my peculiarly constant sense-experiencing, in part private but in part shared, and *servicing as sign of me*. The reason, once more, why my body-as-inferred is not to be described as sign of me is clearly this: neither I, nor other people when conscious of me, are inevitably or invariably or even often aware of my caudate nucleus, blood corpuscles, adrenal glands, or even of my liver and my lungs. And yet, according to careful observation and experiment, I, the conscious self, with my experience, am closely related to this merely inferred portion of my body. In particular, that part of my experience which constitutes my directly-perceived body is closely bound, in one organic system, with the inferred portions of the body. For example, my muscular reactions (directly observed), vary with changes in the frontal Rolandic region (inferred) and my bodily vigor in anger or in rage (observed) vary with the secretions of the adrenal glands (inferred).

<sup>1</sup> “Few of us realize the limitations of our direct ‘private’ knowledge of the interior of our bodies. Probably the most important item of it is that knowledge of something beating under our tangible and partly visible ribs.”

How then shall the personalist conceive these inferred portions of my body? Only two ways seem to be open to him. Either he must content himself with describing them in merely ideistic, not personalistic, terms, as inferences (and in part percepts) of the scientist, forming part of an ordered description of the world of actual and possible sense impressions,<sup>1</sup> or (basing his speculation on the personalistic conception of body or bodily organ as sign of self) he must follow Leibniz and Ward in supposing that such parts of my body as are not signs of me must be signs of some other self or selves. To such selves I should stand in relation of 'dominant' to subordinated self or selves.<sup>2</sup> Such selves, other than I, would have direct experience of what for me are my inferred bodily organs. I should stand to them in no adequate relation of intercommunication. For though, truly enough, they might be said to affect me, for example in my unlocalized fatigue, and though I might be said to affect them when I took chloroform or strychnine, we should yet have no mutual awareness each of the other's awareness of him.<sup>3</sup> It is this lack of complete intercourse which would debar me from knowing the number or the exact nature of such subordinate selves.

With this parenthetical and speculative consideration of the obscure self-body relation this rough outline study of the personalistic nature philosophy must end. To sum up its main points: It has taken the term self at its introspective face value, yet has distinguished three main groups or grades of non-human self: first, the intercommunicative selves, represented by the higher vertebrates; second, a group even less distinctly limited, of selves imperfectly and one-sidedly communicative; finally, the group of selves which constitute the reality of inorganic nature, selves whom we cannot disentangle from each other or delimit, selves with whom we are apparently related but of whom we are not directly aware, with whom we have not intercourse.

<sup>1</sup> Cf. Pearson, *op. cit.*, chapter on "The Scientific Law."

<sup>2</sup> To avoid awkwardness of phraseology, I use the plural 'selves' in the remainder of this paragraph but without intending to decide dogmatically between the two hypotheses.

<sup>3</sup> The relation of this speculation to the various subliminal-self hypotheses must be passed over, since it would carry us too far afield.



## IV

The final section of this paper attempts to state and to meet the most common of the serious criticisms urged against personalistic cosmology. Purely emotional prejudices must be disregarded since it is obviously futile to combat criticisms after the order of

"I do not like you, Dr. Fell;  
The reason why I cannot tell."

Irrationality apart, people ordinarily ignore or discard personalism, as nature philosophy, because they confuse it with what it is not. And of such misinterpretations there are at least three:

1. First and foremost, personalism is confused with pre-scientific animism and our philosophers are consequently desperately eager not to 'compromise themselves' with it. But the truth is that present-day personalism differs almost as much from the ancient fashion of personifying laurel trees and rivers as it differs from the modern realist's apotheosis of mathematical and logical quantities. The modern personalist, as we have seen, turns his back on tree-selves and pebble-selves; emphasizes the differences between selves of different levels; and frankly disclaims the right to a definite conception of any selves with whom he has no communication.

2. More serious is the confusion of personalism with impersonal idealism or the identification of personalism with the solipsistic form of personalism. Such theories reduce to mere series of ideas—whether or not referred to a self makes, at this point, little difference—solar universe after solar universe and geologic epoch after geologic epoch. Against this doctrine the instinctive repulsions of scientists and nature lovers are arrayed. And though this largely affective rejection of ideism and solipsistic nature philosophy cannot be accepted as a metaphysical refutation, though the achievements of Mach and Pearson and the other phenomenologists constitute proof positive that scientific progress is compatible with the adoption of this view—none the less it must be admitted that this reduction of the nature world to the compass of a single mind, to the status of succeeding ideas is, to speak very temperately, a barren and repelling doctrine.

And, whether true or false, attractive or repelling, the conception of the world of nature as a series of phenomena simply is not identical with personalism, the conception of nature as a society of concretely real persons. Personalism can not fairly be rejected for characters which it does not have.

3. More important than either of these misinterpretations is the confusion of personalism with the conception of the universe as lawless. Personalism is condemned for its alleged break with the conception of natural law. To conceive the physical world as fundamentally made up of conscious beings, or selves, is held to menace the doctrine of uniformity, the assumption of predictability on which experimental science is based. The advance of science, it is pointed out, is bound up with the possibility of experiment; and experiment presupposes the recurrence of phenomena; and the recurrence of phenomena involves a uniform and necessary causal relation between them. Such a necessary uniformity, we are told, is what is meant by a law of nature; and scientific progress, it is justly held, has consisted and must consist in the establishment of laws of nature, verified hypotheses. The personalistic conception of nature, it is urged, substitutes for this conception of an orderly world of predictable phenomena, causally connected, what is virtually the picture of the nature-world as a mob, a crowd of irresponsible, capricious, lawless conscious beings.

The personalist meets this formidable arraignment by protesting that it is founded on an inadequate view of personalism, and on a misconception of scientific law. To start from the first of these positions: it is of capital importance to point out that personalism is not of necessity an indeterministic doctrine. It has been so described largely because it has been confused with entelechistic vitalism which conceives the soul as possessed of genuine initiative. But the self, notwithstanding the characters which it shares with the soul, differs from the soul both in origin and in nature. Thus the soul is inferred as explanation of biological phenomena, whereas the self is directly experienced. And the inferred soul, or entelechy, is conceived as "suspending physical reactions now in one direction and now in another,"

whereas the activity attributed to self is a species of consciousness, a feeling of activity. Such a feeling of power or activity is not always a consciousness of capacity for choice—it may consist, for example, in the mere expansive feeling of spontaneity, untrammelledness. And even when it does take the form of feeling of power, such a feeling may perfectly well be illusory. In other words, the active self may be a really determined self for all its feeling of power. It is true that most of our modern pluralistic personalisms—Bergson's, for example,—are indeterministic, but this is not because a self is of necessity an undetermined being. Leibniz's essentially deterministic personalism is a standing refutation of the uncritical identification of pluralistic personalism with indeterminism. And absolutist personalism offers what is perhaps the only *a priori* confirmation of determinism.

Even more important to the present purpose than the truth that not all personalism is deterministic is the consideration that personalism even of the indeterministic type does not stand irreconcilably opposed to the conception of scientific law. Scientific law is of course to be taken not in the old, traditional and mythical sense of an inexorable sort of external force, an inexplicable coercing power, but in its truly and admittedly scientific sense, as formulation of the results of "humanity's process of making a survey of the universe"—formulations which, as Jennings points out, reduce to predictions such as these: "When you have such and such experiences you will have such and such other experiences."<sup>1</sup> In a word, a scientific law is an experienced, generalized, justifiably predicted uniformity of experience. Now this conception (obviously stateable, and in fact most often stated, in personal terms) clashes with indeterministic personalism only when the uniformity is regarded as absolute, when the predicted recurrence is conceived as apodictically certain. But the temperate, experimental scientist makes no such claim. He simply postulates absolute uniformity for the purposes of experiment and description. When the union of NaCl and

<sup>1</sup> "Doctrines Held as Vitalism," *The American Naturalist*, 1913, XLVII, pp. 392-393.

$H_2SO_4$  fails to give hydrochloric acid and sodium sulphate the experimenter does not, to be sure, view this as a proof of indeterminism but rather as indication that his salt or his sulphuric acid or both are impure. But this practical postulate of complete uniformity is far from constituting an assertion of axiomatically absolute nature uniformities, of necessary predictions. Here the clear thinker, scientist or metaphysician, must take his stand with Hume. Scientific laws are generalizations from experience: in the nature of the case, finite experience cannot be universal. No human being has ever seen or can ever see every particle of matter; attraction inversely as the square root of the distance is not the only conceivable relation between particles; even the law of gravitation is therefore a generalization from the widest observation, not an intuitive and axiomatic certainty, still less an inexorable compeller of the motion of particles.

But when once this is admitted, as it is indeed admitted by most scientists, all incompatibility vanishes between experimental science with its postulate of uniformity and even indeterministic personal cosmology. For the nature world as the indeterministic personalist conceives it is no anarchic universe in which one event is as likely to occur as another, in which prediction is futile. Rather, the world of the indeterministic personalist is itself a world of laws; but these are statistical laws, laws of average behavior, uniformities of the conduct not of individuals but of classes. From their wide observation of the ages at which men die, the insurance companies—in spite of the great diversities of physical constitution—make up their tables of vital statistics, predictions of the dates of death of their clientèle. From their incomparably wider acquaintance with particles, utterly simple beings, physicists formulate the law of gravitation—still a statistical law, but an indefinitely greater, indeed a practically complete approximation toward an absolute uniformity. To quote from James Ward's illustration of the same point: Supposing that industrial statisticians "instead of trade returns from a score or two of countries had returns from one or two thousand, the inhabitants being increased a myriad fold,

and being also severally vastly more the creatures of habit than men now are, we can imagine such statistics would approximate still more closely to those of the physicist. The physicist, like the statist," Ward insists, "is always dealing with aggregates, but unlike the statist he finds the constituent individuals to be beyond his ken. The statist is aware that individual variations underlie his aggregates but they do not interest him: the physicist is ignorant of those underlying his and assumes that they do not exist."<sup>1</sup> Thus, for the indeterminist, in Royce's phrase, the statistical not the mechanical (in the sense of the inevitable or absolute) is the canonical form of scientific law.<sup>2</sup> But this conception of the nature-law as statement of average behavior, especially when applied as in physical science to the behavior of relatively static individuals, amply justifies the experimentalist in his scientific postulate of complete uniformity.

A final criticism must be met. Granting all that has been said—granting that personalism is unjustly identified with pre-animism, with phenomenalism and with the doctrine of the lawless universe, it remains to the end, the critic insists, a conception totally unfitted to interpret the detailed results of scientific observation and experiment. The personalist, it is with some show of reason alleged, is shut up to the unfruitful statement: "there exist non-human selves", but has no clue to the number or the limit of them; and knows far too little about their nature to translate into personal terms facts of chemical combination, for example, of radioactivity, or of electrical insulation.

The personalist, in the face of this objection will admit, in the first place, that nature philosophy, is a more speculative doctrine than social philosophy, and, in the second place, that the physical world has often to be described in terms not of selves, but of spaces and motions and weight, not to name colors and sounds.<sup>3</sup> To take random examples: the description of Arcturus as shining

<sup>1</sup> *The Realm of Ends*, Lecture III., pp. 65-66.

<sup>2</sup> "The Mechanical, the Historical and the Statistical," *Science*, N. S., XXXIX, 1914, pp. 551 ff., *passim*.

<sup>3</sup> All manufactured things, clothes and houses, and automobiles have to be described in these terms.

like two hundred suns, of the sun as containing sodium, iron and copper in the form of gleaming vapors—these scientific descriptions certainly are not and cannot be in terms of the sun's or of Arcturus's conscious experience. The personalist, to be sure, will supplement this admission by pointing out that these descriptions of Arcturus's brilliancy and of the sun's gases are descriptions of the world as it appears, or as it might appear, to observing scientists. In other words: even when or if we find it impossible to describe physical phenomena in an adequately personalistic fashion, that is, in terms of individual conscious beings each with its own unique experiencing and initiative, we are yet driven to describe these phenomena in terms of the shared experiencing of conscious, observing selves. To use Fite's phrase in our own setting: when we are no longer able to know things as they feel, we none the less know them as they look—to us human selves.<sup>1</sup>

The personalist, however, is not content to stop here. He finds in scientific accounts of the physical world, not merely recorded observations, refined and multiplied by modern technique, of things as they look to people, and not merely laws stateable in terms of the uniform and predicted sequences of experience, direct or inferred. He finds also an irrepressible tendency to talk about corpuscles, atoms, ions as possessed of an individuality, a unique being, and, in particular, an activity and initiative of their own. "The atom," for example, is said to start with a certain "amount of kinetic energy";<sup>2</sup> radium is said to "emit energy"; bodies are held to "exert force"; "lines of force" are supposed to "repel each other."<sup>3</sup> These conceptions, the personalist boldly asserts, are of value, have a meaning, only as bodies and substances, thus dynamically conceived, and are virtually, though vaguely, regarded as active, initiating selves.

Confirmation of this conclusion is derived from the statements of scientists and methodologists of science. Ostwald, for example, bids us study our own "voluntary activity" (*Willens-*

<sup>1</sup> Warner Fite: "The Human Soul and the Scientific Prepossession," *Atlantic Monthly*, December, 1918, Vol. XXII, p. 778.

<sup>2</sup> J. J. Thomson, *Electricity and Matter*, 1907, pp. 156 f.

<sup>3</sup> *Ibid.*, pp. 7 ff. Cf. W. F. Cooley, *The Principles of Science*, p. 129<sup>2</sup>.

*betätigung*) in order to "gain an idea of the content of the concept of energy;"<sup>1</sup> Montague observes that "potential energy is . . . perceivable internally or by participation in it through . . . the muscular sense";<sup>2</sup> and W. F. Cooley says: "The fact seems to be that for most investigators, as well as for men in general, the straining of which we are conscious in our own organisms when in action is accounted sufficient ground for the posit of an active something within us . . . which is transferred to similar situations external to us and used as the natural cue for their interpretation. . . . That factor we call force, energy, power, at times will . . . : It is, evidently, an object of immediate experience."<sup>3</sup> It will be remembered that this is Pearson's contention. And, phenomenalist that he is, he would banish from science the conception of force excepting in the sense of "conceptual measure of motion," precisely because he believes that force, in any other sense, "is the will of the old spiritualist separated from consciousness."<sup>4</sup> But Pearson and Mach avail no more than Berkeley to hold down the scientist to the purely phenomenalist categories.

Even the supposedly static characters of physical things are conceived in terms which, to say the least, are as truly personal as impersonal. Thus inertia ("the one sole unalterable property of matter")<sup>5</sup> is either defined in terms of passivity or inaction, as the property in virtue of which "matter cannot of itself change its own state,"<sup>6</sup> or it is conceived as "resistance to any change of state." But passivity is a basal character of the perceiving self, and resistance is, once more, a form of activity. In a word, the physicist when he talks in explanatory and not in descriptive terms, really personifies his units. For change and persistence, passivity and activity would be meaningless terms if they did not suggest to each of us his own self-identity and growth, his receptivity and self-initiative. I am not arguing, of course,

<sup>1</sup> *Vorlesungen über Naturphilosophie*, pp. 153 ff.

<sup>2</sup> *Essays in Honor of William James*, p. 123.

<sup>3</sup> Cooley, *op. cit.*, pp. 110-111.

<sup>4</sup> *The Grammar of Science*, second edition, pp. 305, 119.

<sup>5</sup> R. K. Duncan: *The New Knowledge*, p. 179, quoted by Cooley, *op. cit.*, p. 87.

<sup>6</sup> Ganot, transl. E. Atkinson, *Physics*, 13th ed., p. 10.

that these conceptual entities of the scientists, the atoms and ions and electrons which they infer to account for observed phenomena, are really existing selves. I am claiming only that they are beings constructed after the analogy of selves—constructs which are meaningless unless conceived in personal terms. And if this is true, if at the very core of speculative science lies the concept of the conscious self, then assuredly personalism is no negligible factor of a genuine nature-philosophy.

In conclusion, therefore, I venture to appeal, in behalf of personalistic cosmology, for the respectful and detailed consideration which it has seldom received. Two tendencies of modern science, as this paper tries to show, seem to favor such an upgrowth of personalistic doctrine. The first of these is the prevalence, suggested in the pages immediately preceding, of dynamic theories in physics. The second is the rising opposition, evident in all the papers of this year's discussion,<sup>1</sup> to vitalism in the biologist's sense of the term. Biological vitalism, as mere emphasis on the categories of order and fitness, has been rejected on the ground that the biologist has no monopoly on these categories. Biological vitalism, as a capriciously indeterministic entelechy doctrine, has been condemned as a baseless hypothesis. But the elimination of biological vitalism opens the way, as the first division of this paper seeks to show, to psychological vitalism or personalism. I look hopefully, therefore, for a recognition of the claims of personalism as soon as scientists and metaphysicians can be persuaded that it involves neither animism, phenomenalism nor crass indeterminism.

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<sup>1</sup> Cf. this REVIEW, November, 1918, *passim*.