

nachhegelschen Ära des Materialismus zerklüfteten Trümmerhaufen gleich, jugendkräftiges Leben erblüht, so wollen wir wieder bauen. An Zerstörern haben wir wahrlich keinen Mangel. Aber konstruktive philosophische Phantasie, wie sie James besitzt, das ist es, wonach wir lechzen.

Es schlägt dabei wenig, daß letzten Endes Fichte recht behält: Was für Philosophie man habe, hänge ganz davon ab, was man für Mensch sei. Wir durchschauen vollständig, ja wir fordern geradezu jene Psychologie der Systembildung, welche uns einen Blick tun läßt hinter die Kulissen der landläufigen philosophischen Begriffsbildungen. Ich halte jede Weltanschauung mit Xenophanes für einen „Anthropomorphismus“ oder mit Lipps für eine „Einfühlung“. Nur füge ich noch hinzu: dieser anthropomorphisierende Zug gehört zur menschlichen Stammesnatur; er ist unaufhebbar und unaufgebbbar. Franz Bacon rechnete diesen Zug der Menschennatur, das Weltbild durch Angleichung an das belebte Innere des Menschen zu gestalten, zu den „idola tribus“. Der Blick war richtig. Falsch war nur seine Vermutung, daß wir uns von diesen „Idolen der Gattung“ jemals und irgendwie freimachen könnten. Geborene Logiker oder Mathematiker werden genau so einer rationalistischen und kausalen Weiterklärung zuneigen wie Gefühlsmenschen. Schwärmer und Sinnierer einer ästhetisch-teleologischen Deutung instinktiv den Vorzug geben, oder endlich kraftbewußte Willensmenschen sich zu einem energetisch-voluntaristischen Weltbild hingezogen fühlen. Unseren drei seelischen Grundfunktionen in Empfindung, Gefühl und Wille entsprechend, wird es mindestens drei Weltanschauungstypen geben: Rationalisten, Romantiker und Voluntaristen. Die einen rationalisieren, die anderen sentimentalisieren, die dritten endlich voluntarisieren nach ihrem eigenen Ebenbilde die Welt. Der Pragmatismus ist ein neuer Sammelname für den seit Schopenhauer, Ribot, Wundt und Ostwald zur Vorherrschaft gelangten voluntaristischen Denktypus.

VIII.

Grundzüge einer Sozialaristokratie.

Von

Friedrich Sommer in Arbon (Schweiz).

Zweites Stück.

Mit Recht macht man der Schule unserer Tage den Vorwurf, sie unterdrücke die Individualität des Schülers. Daß ein dem Denkvermögen des Kindes angepaßter Privatunterricht bessere Früchte trägt als eine Massen- und Klassenerziehung, ist allerdings eine alte Geschichte, und ihre Wiederholung an dieser Stelle möchte fast überflüssig erscheinen. Schon Cicero lehrte, daß jeder so viel als möglich seinem Charakter gemäß erzogen werden müsse. Rousseau forderte eine Erziehung zum Menschen statt zum Bürger. In Humboldt und Stephani und andern finden wir begeisterte Anhänger dieser Lehre. Jedoch ist, in Erwägung der großen Schwierigkeit für den Lehrer, die Rücksicht auf den einzelnen mit dem Blick für das Ganze in Einklang zu bringen, diese ideale Erziehungsmethode nur in bescheidenem Maße praktisch zur Anwendung gelangt. Immerhin dürfte sehr viel gewonnen werden durch die Erziehung zur Prüfung und Beurteilung der Schüler untereinander. Erst hierdurch können die seelischen Kräfte und Mängel des Kindes dem Lehrer völlig offenbar werden. Erst so wird es möglich sein, homogene Schülergruppen für den Unterricht zu organisieren.

Wollen wir nun genetisch die Reihenfolge der natürlichen psychischen Zustandsänderungen des Kindes aufstellen, und zwar im Sinne eines aufsteigenden Astes, so gelangen wir, nach empirischen Grundsätzen verfahren, zu folgendem Resultat:

1. Schauen lernen (im weiteren Sinne überhaupt Empfinden lernen),

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THE HIBBERT JOURNAL

A QUARTERLY REVIEW OF
RELIGION, THEOLOGY, AND
PHILOSOPHY

EDITED BY

L. P. JACKS, M.A.

AND

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VOLUME VII

OCTOBER 1908—JULY 1909

LONDON

WILLIAMS AND NORGATE

1909

90

A NEGLECTED ARGUMENT FOR THE REALITY OF GOD.

C. S. PEIRCE.

I.

THE word "God," so "capitalised" (as we Americans say), is the definable proper name, signifying *Ens necessarium*; in my belief Really creator of all three Universes of Experience.

Some words shall herein be capitalised when used, not as vernacular, but as terms defined. Thus an "idea" is the substance of an actual unitary thought or fancy; but "Idea," nearer Plato's idea of *ἰδέα*, denotes anything whose Being consists in its mere capacity for getting fully represented, regardless of any person's faculty or impotence to represent it.

"Real" is a word invented in the thirteenth century to signify having Properties, *i.e.* characters sufficing to identify their subject, and possessing these whether they be anywise attributed to it by any single man or group of men, or not. Thus, the substance of a dream is not Real, since it was such as it was, merely in that a dreamer so dreamed it; but the fact of the dream is Real, if it was dreamed; since if so, its date, the name of the dreamer, etc., make up a set of circumstances sufficient to distinguish it from all other events; and these belong to it, *i.e.* would be true if predicated of it, whether A, B, or C Actually ascertains them or not. The "Actual" is that which is met with in the past, present, or future.

An "Experience" is a brutally produced conscious effect that contributes to a habit, self-controlled, yet so satisfying, on

deliberation, as to be destructible by no positive exercise of internal vigour. I use the word "self-controlled" for "controlled by the thinker's self," and not for "uncontrolled" except in its own spontaneous, *i.e.* automatic, self-development, as Professor J. M. Baldwin uses the word. Take for illustration the sensation undergone by a child that puts its forefinger into a flame with the acquisition of a habit of keeping all its members out of all flames. A compulsion is "Brute," whose immediate efficacy nowise consists in conformity to rule or reason.

Of the three Universes of Experience familiar to us all, the first comprises all mere Ideas, those airy nothings to which the mind of poet, pure mathematician, or another *might* give local habitation and a name within that mind. Their very airy-nothingness, the fact that their Being consists in mere capability of getting thought, not in anybody's Actually thinking them, saves their Reality. The second Universe is that of the Brute Actuality of things and facts. I am confident that their Being consists in reactions against Brute forces, notwithstanding objections redoubtable until they are closely and fairly examined. The third Universe comprises everything whose being consists in active power to establish connections between different objects, especially between objects in different Universes. Such is everything which is essentially a Sign—not the mere body of the Sign, which is not essentially such, but, so to speak, the Sign's Soul, which has its Being in its power of serving as intermediary between its Object and a Mind. Such, too, is a living consciousness, and such the life, the power of growth, of a plant. Such is a living constitution—a daily newspaper, a great fortune, a social "movement."

An "Argument" is any process of thought reasonably tending to produce a definite belief. An "Argumentation" is an Argument proceeding upon definitely formulated premisses.

If God Really be, and be benign, then, in view of the generally conceded truth that religion, were it but proved, would be a good outweighing all others, we should naturally

expect that there would be some Argument for His Reality that should be obvious to all minds, high and low alike, that should earnestly strive to find the truth of the matter; and further, that this Argument should present its conclusion, not as a proposition of metaphysical theology, but in a form directly applicable to the conduct of life, and full of nutrition for man's highest growth. What I shall refer to as the N.A.—the Neglected Argument—seems to me best to fulfil this condition, and I should not wonder if the majority of those whose own reflections have harvested belief in God must bless the radiance of the N.A. for that wealth. Its persuasiveness is no less than extraordinary; while it is not unknown to anybody. Nevertheless, of all those theologians (within my little range of reading) who, with commendable, assiduity, scrape together all the sound reasons they can find or concoct to prove the first proposition of theology, few mention this one, and they most briefly. They probably share those current notions of logic which recognise no other Arguments than Argumentations.

There is a certain agreeable occupation of mind which, from its having no distinctive name, I infer is not as commonly practised as it deserves to be; for indulged in moderately—say through some five to six per cent. of one's waking time, perhaps during a stroll—it is refreshing enough more than to repay the expenditure. Because it involves no purpose save that of casting aside all serious purpose, I have sometimes been half-inclined to call it reverie, with some qualification; but for a frame of mind so antipodal to vacancy and dreaminess such a designation would be too excruciating a misfit. In fact, it is Pure Play. Now, Play, we all know, is a lively exercise of one's powers. Pure Play has no rules, except this very law of liberty. It bloweth where it listeth. It has no purpose, unless recreation. The particular occupation I mean—a *petite bouchée* with the Universes—may take either the form of esthetic contemplation, or that of distant castle-building (whether in Spain or within one's own moral training), or

that of considering some wonder in one of the Universes, or some connection between two of the three, with speculation concerning its cause. It is this last kind—I will call it "Musement" on the whole—that I particularly recommend, because it will in time flower into the N.A. One who sits down with the purpose of becoming convinced of the truth of religion is plainly not inquiring in scientific singleness of heart, and must always suspect himself of reasoning unfairly. So he can never attain the entirety even of a physicist's belief in electrons, although this is avowedly but provisional. But let religious meditation be allowed to grow up spontaneously out of Pure Play without any breach of continuity, and the Muser will retain the perfect candour proper to Musement.

If one who had determined to make trial of Musement as a favourite recreation were to ask me for advice, I should reply as follows: The dawn and the gloaming most invite one to Musement; but I have found no watch of the nycthemeron that has not its own advantages for the pursuit. It begins passively enough with drinking in the impression of some nook in one of the three Universes. But impression soon passes into attentive observation, observation into musing, musing into a lively give-and-take of communion between self and self. If one's observations and reflections are allowed to specialise themselves too much, the Play will be converted into scientific study; and that cannot be pursued in odd half-hours.

I should add: adhere to the one ordinance of Play, the law of liberty. I can testify that the last half century, at least, has never lacked tribes of Si. Oracles, colporting brocards to bar off one or another roadway of inquiry; and a Rabelais would be needed to bring out all the fun that has been packed in their airs of infallibility. Auguste Comte, notwithstanding his having apparently produced some unquestionably genuine thinking, was long the chief of such a band. The vogue of each particular maxim of theirs was necessarily brief. For what distinction can be gained by repeating saws

heard from all mouths? No bygone fashion seems more grotesque than a *panache* of obsolete wisdom. I remember the days when a pronouncement all the rage was that no science must borrow the methods of another; the geologist must not use a microscope, nor the astronomer a spectro-scope. Optics must not meddle with electricity, nor logic with algebra. But twenty years later, if you aspired to pass for a commanding intellect, you would have to pull a long face and declare that "It is not the business of science to search for origins." This maxim was a masterpiece, since no timid soul, in dread of being thought naïve, would dare inquire what "origins" were, albeit the secret confessor within his breast compelled the awful self-acknowledgment of his having no idea into what else than "origins" of phenomena (in some sense of that indefinite word) man can inquire. That human reason can comprehend some causes is past denial, and once we are forced to recognise a given element in experience, it is reasonable to await positive evidence before we complicate our acknowledgment with qualifications. Otherwise, why venture beyond direct observation? Illustrations of this principle abound in physical science. Since, then, it is certain that man is able to understand the laws and the causes of some phenomena, it is reasonable to assume, in regard to any given problem, that it would get rightly solved by man, if a sufficiency of time and attention were devoted to it. Moreover, those problems that at first blush appear utterly insoluble receive, in that very circumstance, as Edgar Poe remarked in his *The Murders in the Rue Morgue*, their smoothly-fitting keys. This particularly adapts them to the Play of Musement.

Forty or fifty minutes of vigorous and unslackened analytic thought bestowed upon one of them usually suffices to educe from it all there is to educe, its general solution. There is no kind of reasoning that I should wish to discourage in Musement; and I should lament to find anybody confining it to a method of such moderate fertility as logical analysis.

Only, the Player should bear in mind that the higher weapons in the arsenal of thought are not play-things but edge-tools. In any mere Play they can be used by way of exercise alone; while logical analysis can be put to its full efficiency in Musement. So, continuing the counsels that had been asked of me, I should say, "Enter your skiff of Musement, push off into the lake of thought, and leave the breath of heaven to swell your sail. With your eyes open, awake to what is about or within you, and open conversation with yourself; for such is all meditation." It is, however, not a conversation in words alone, but is illustrated, like a lecture, with diagrams and with experiments.

Different people have such wonderfully different ways of thinking, that it would be far beyond my competence to say what courses Musements might not take; but a brain endowed with automatic control, as man's indirectly is, is so naturally and rightly interested in its own faculties that some psychological and semi-psychological questions would doubtless get touched; such, in the latter class, as this: Darwinians, with truly surprising ingenuity, have concocted, and with still more astonishing confidence have accepted as proved, one explanation for the diverse and delicate beauties of flowers, another for those of butterflies, and so on; but why is all nature—the forms of trees, the compositions of sunsets—suffused with such beauties throughout, and not nature only, but the other two Universes as well? Among more purely psychological questions, the nature of pleasure and pain will be likely to attract attention. Are they mere qualities of feeling, or are they rather motor instincts attracting us to some feelings and repelling others? Have pleasure and pain the same sort of constitution, or are they contrasted in this respect, pleasure arising upon the formation or strengthening of an association by resemblance, and pain upon the weakening or disruption of such a habit or conception?

Psychological speculations will naturally lead on to musings upon metaphysical problems proper, good exercise for a mind

with a turn for exact thought. It is here that one finds those questions that at first seem to offer no handle for reason's clutch, but which readily yield to logical analysis. But problems of metaphysics will inevitably present themselves that logical analysis will not suffice to solve. Some of the best will be motivated by a desire to comprehend universe-wide aggregates of unformulated but partly experienced phenomena. I would suggest that the Muser be not too impatient to analyse these, lest some significant ingredient be lost in the process; but that he begin by pondering them from every point of view, until he seems to read some truth beneath the phenomena.

At this point a trained mind will demand that an examination be made of the truth of the interpretation; and the first step in such examination must be a logical analysis of the theory. But strict examination would be a task a little too serious for the Musement of hour-fractions, and if it is postponed there will be ample remuneration even in the suggestions that there is not time to examine; especially since a few of them will appeal to reason as all but certain.

Let the Muser, for example, after well appreciating, in its breadth and depth, the unspeakable variety of each Universe, turn to those phenomena that are of the nature of homogeneities of connectedness in each; and what a spectacle will unroll itself! As a mere hint of them I may point out that every small part of space, however remote, is bounded by just such neighbouring parts as every other, without a single exception throughout immensity. The matter of Nature is in every star of the same elementary kinds, and (except for variations of circumstance) what is more wonderful still, throughout the whole visible universe, about the same proportions of the different chemical elements prevail. Though the mere catalogue of known carbon-compounds alone would fill an unwieldy volume, and perhaps, if the truth were known, the number of amido-acids alone is greater, yet it is unlikely that there are in all more than about 600 elements, of which 500

dart through space too swiftly to be held down by the earth's gravitation, coronium being the slowest-moving of these. This small number bespeaks comparative simplicity of structure. Yet no mathematician but will confess the present hopelessness of attempting to comprehend the constitution of the hydrogen-atom, the simplest of the elements that can be held to earth.

From speculations on the homogeneities of each Universe, the Muser will naturally pass to the consideration of homogeneities and connections between two different Universes, or all three. Especially in them all we find one type of occurrence, that of growth, itself consisting in the homogeneities of small parts. This is evident in the growth of motion into displacement, and the growth of force into motion. In growth, too, we find that the three Universes conspire; and a universal feature of it is provision for later stages in earlier ones. This is a specimen of certain lines of reflection which will inevitably suggest the hypothesis of God's Reality. It is not that such phenomena might not be capable of being accounted for, in one sense, by the action of chance with the smallest conceivable dose of a higher element; for if by God be meant the *Ens necessarium*, that very hypothesis requires that such should be the case. But the point is that that sort of explanation leaves a mental explanation just as needful as before. Tell me, upon sufficient authority, that all cerebration depends upon movements of neurites that strictly obey certain physical laws, and that thus all expressions of thought, both external and internal, receive a physical explanation, and I shall be ready to believe you. But if you go on to say that this explodes the theory that my neighbour and myself are governed by reason, and are thinking beings, I must frankly say that it will not give me a high opinion of your intelligence. But however that may be, in the Pure Play of Musement the idea of God's Reality will be sure sooner or later to be found an attractive fancy, which the Muser will develop in various ways. The more he ponders it, the more it will find response in every part of his mind, for

its beauty, for its supplying an ideal of life, and for its thoroughly satisfactory explanation of his whole threefold environment.

II.

The hypothesis of God is a peculiar one, in that it supposes an infinitely incomprehensible object, although every hypothesis, as such, supposes its object to be truly conceived in the hypothesis. This leaves the hypothesis but one way of understanding itself; namely, as vague yet as true so far as it is definite, and as continually tending to define itself more and more, and without limit. The hypothesis, being thus itself inevitably subject to the law of growth, appears in its vagueness to represent God as so, albeit this is directly contradicted in the hypothesis from its very first phase. But this apparent attribution of growth to God, since it is ineradicable from the hypothesis, cannot, according to the hypothesis, be flatly false. Its implications concerning the Universes will be maintained in the hypothesis, while its implications concerning God will be partly disavowed, and yet held to be less false than their denial would be. Thus the hypothesis will lead to our thinking of features of each Universe as purposed; and this will stand or fall with the hypothesis. Yet a purpose essentially involves growth, and so cannot be attributed to God. Still it will, according to the hypothesis, be less false to speak so than to represent God as purposeless.

Assured as I am from my own personal experience that every man capable of so controlling his attention as to perform a little exact thinking will, if he examines Zeno's argument about Achilles and the tortoise, come to think, as I do, that it is nothing but a contemptible catch, I do not think that I either am or ought to be less assured, from what I know of the effects of Musement on myself and others, that any normal man who considers the three Universes in the light of the hypothesis of God's Reality, and pursues that line of reflection in scientific singleness of heart, will come to be stirred to the depths of his nature by the beauty of the idea and by its

august practicality, even to the point of earnestly loving and adoring his strictly hypothetical God, and to that of desiring above all things to shape the whole conduct of life and all the springs of action into conformity with that hypothesis. Now to be deliberately and thoroughly prepared to shape one's conduct into conformity with a proposition is neither more nor less than the state of mind called Believing that proposition, however long the conscious classification of it under that head be postponed.

III.

There is my poor sketch of the Neglected Argument, greatly cut down to bring it within the limits assigned to this article. Next should come the discussion of its logicity; but nothing readable at a sitting could possibly bring home to readers my full proof of the principal points of such an examination. I can only hope to make the residue of this paper a sort of table of contents, from which some may possibly guess what I have to say; or to lay down a series of plausible points through which the reader will have to construct the continuous line of reasoning for himself. In my own mind the proof is elaborated, and I am exerting my energies to getting it submitted to public censure. My present abstract will divide itself into three unequal parts. The first shall give the headings of the different steps of every well-conducted and complete inquiry, without noticing possible divergencies from the norm. I shall have to mention some steps which have nothing to do with the Neglected Argument in order to show that they add no jot nor tittle to the truth which is invariably brought just as the Neglected Argument brings it. The second part shall very briefly state, without argument (for which there is no room), just wherein lies the logical validity of the reasoning characteristic of each of the main stages of inquiry. The third part shall indicate the place of the Neglected Argument in a complete inquiry into the Reality of God, and shall show how well it would fill that place, and what its logical value is supposing the

inquiry to be limited to this; and I shall add a few words to show how it might be supplemented.

Every inquiry whatsoever takes its rise in the observation, in one or another of the three Universes, of some surprising phenomenon, some experience which either disappoints an expectation, or breaks in upon some habit of expectation of the *inquisiturus*; and each apparent exception to this rule only confirms it. There are obvious distinctions between the objects of surprise in different cases; but throughout this slight sketch of inquiry such details will be unnoticed, especially since it is upon such that the logic-books descant. The inquiry begins with pondering these phenomena in all their aspects, in the search of some point of view whence the wonder shall be resolved. At length a conjecture arises that furnishes a possible Explanation, by which I mean a syllogism exhibiting the surprising fact as necessarily consequent upon the circumstances of its occurrence together with the truth of the credible conjecture, as premisses. On account of this Explanation, the inquirer is led to regard his conjecture, or hypothesis, with favour. As I phrase it, he provisionally holds it to be "Plausible"; this acceptance ranges in different cases—and reasonably so—from a mere expression of it in the interrogative mood, as a question meriting attention and reply, up through all appraisals of Plausibility, to uncontrollable inclination to believe. The whole series of mental performances between the notice of the wonderful phenomenon and the acceptance of the hypothesis, during which the usually docile understanding seems to hold the bit between its teeth and to have us at its mercy—the search for pertinent circumstances and the laying hold of them, sometimes without our cognisance, the scrutiny of them, the dark labouring, the bursting out of the startling conjecture, the remarking of its smooth fitting to the anomaly, as it is turned back and forth like a key in a lock, and the final estimation of its Plausibility, I reckon as composing the First Stage of Inquiry. Its characteristic formula of reasoning I term Retroduction, *i.e.*

reasoning from consequent to antecedent. In one respect the designation seems inappropriate; for in most instances where conjecture mounts the high peaks of Plausibility—and is *really* most worthy of confidence—the inquirer is unable definitely to formulate just what the explained wonder is; or can only do so in the light of the hypothesis. In short, it is a form of Argument rather than of Argumentation.

Retroduction does not afford security. The hypothesis must be tested.

This testing, to be logically valid, must honestly start, not as Retroduction starts, with scrutiny of the phenomena, but with examination of the hypothesis, and a muster of all sorts of conditional experiential consequences which would follow from its truth. This constitutes the Second Stage of Inquiry. For its characteristic form of reasoning our language has, for two centuries, been happily provided with the name Deduction.

Deduction has two parts. For its first step must be by logical analysis to Explicate the hypothesis, *i.e.* to render it as perfectly distinct as possible. This process, like Retroduction, is Argument that is not Argumentation. But unlike Retroduction, it cannot go wrong from lack of experience, but so long as it proceeds rightly must reach a true conclusion. Explication is followed by Demonstration, or Deductive Argumentation. Its procedure is best learned from Book I. of Euclid's *Elements*, a masterpiece which in real insight is far superior to Aristotle's *Analytics*; and its numerous fallacies render it all the more instructive to a close student. It invariably requires something of the nature of a diagram; that is, an "Icon," or Sign that represents its Object in resembling it. It usually, too, needs "Indices," or Signs that represent their Objects by being actually connected with them. But it is mainly composed of "Symbols," or Signs that represent their Objects essentially because they will be so interpreted. Demonstration should be *Corollarial* when it can. An accurate definition of Corollarial Demonstration would require a long

explanation; but it will suffice to say that it limits itself to considerations already introduced or else involved in the Explication of its conclusion; while *Theorematic* Demonstration resorts to a more complicated process of thought.

The purpose of Deduction, that of collecting consequents of the hypothesis, having been sufficiently carried out, the inquiry enters upon its Third Stage, that of ascertaining how far those consequents accord with Experience, and of judging accordingly whether the hypothesis is sensibly correct, or requires some inessential modification, or must be entirely rejected. Its characteristic way of reasoning is Induction. This stage has three parts. For it must begin with Classification, which is an Inductive Non-argumentational kind of Argument, by which general Ideas are attached to objects of Experience; or rather by which the latter are subordinated to the former. Following this will come the testing-argumentations, the Probations; and the whole inquiry will be wound up with the Sentential part of the Third Stage, which, by Inductive reasonings, appraises the different Probations singly, then their combinations, then makes self-appraisal of these very appraisals themselves, and passes final judgment on the whole result.

The Probations, or direct Inductive Argumentations, are of two kinds. The first is that which Bacon ill described as "*inductio illa quæ procedit per enumerationem simplicem*." So at least he has been understood. For an enumeration of instances is not essential to the argument that, for example, there are no such beings as fairies, or no such events as miracles. The point is that there is no well-established instance of such a thing. I call this Crude Induction. It is the only Induction which concludes a logically Universal Proposition. It is the weakest of arguments, being liable to be demolished in a moment, as happened toward the end of the eighteenth century to the opinion of the scientific world that no stones fall from the sky. The other kind is Gradual Induction, which makes a new estimate of the proportion of

truth in the hypothesis with every new instance; and given any degree of error there will *sometime* be an estimate (or would be, if the probation were persisted in) which will be absolutely the last to be infected with so much falsity. Gradual Induction is either Qualitative or Quantitative, and the latter either depends on measurements, or on statistics, or on countings.

IV.

Concerning the question of the nature of the logical validity possessed by Deduction, Induction, and Retroduction, which is still an arena of controversy, I shall confine myself to stating the opinions which I am prepared to defend by positive proofs. The validity of Deduction was correctly, if not very clearly, analysed by Kant. This kind of reasoning deals exclusively with Pure Ideas attaching primarily to Symbols and derivatively to other Signs of our own creation; and the fact that man has a power of Explicating his own meaning renders Deduction valid. Induction is a kind of reasoning that may lead us into error; but that it follows a method which, sufficiently persisted in, will be Inductively Certain (the sort of certainty we have that a perfect coin, pitched up often enough, will *sometime* turn up heads) to diminish the error below any predesignate degree, is assured by man's power of perceiving Inductive Certainty. In all this I am inviting the reader to peep through the big end of the telescope; there is a wealth of pertinent detail that must here be passed over.

Finally comes the bottom question of logical Critic, What sort of validity can be attributed to the First Stage of inquiry? Observe that neither Deduction nor Induction contributes the smallest positive item to the final conclusion of the inquiry. They render the indefinite definite; Deduction Explicates; Induction evaluates: that is all. Over the chasm that yawns between the ultimate goal of science and such ideas of Man's environment as, coming over him during his primeval wanderings in the forest, while yet his very notion of error was of the vaguest, he managed to communicate to some fellow, we are

building a cantilever bridge of induction, held together by scientific struts and ties. Yet every plank of its advance is first laid by Retroduction alone, that is to say, by the spontaneous conjectures of instinctive reason; and neither Deduction nor Induction contributes a single new concept to the structure. Nor is this less true or less important for those inquiries that self-interest prompts.

The first answer we naturally give to this question is that we cannot help accepting the conjecture at such a valuation as that at which we do accept it; whether as a simple interrogation, or as more or less Plausible, or, occasionally, as an irresistible belief. But far from constituting, *by* itself, a logical justification such as it becomes a rational being to put forth, this pleading, that we *cannot help* yielding to the suggestion, amounts to nothing more than a confession of having failed to train ourselves to control our thoughts. It is more to the purpose, however, to urge that the strength of the impulse is a symptom of its being instinctive. Animals of all races rise far above the general level of their intelligence in those performances that are their proper function, such as flying and nest-building for ordinary birds; and what is man's proper function if it be not to embody general ideas in art-creations, in utilities, and above all in theoretical cognition? To give the lie to his own consciousness of divining the reasons of phenomena would be as silly in a man as it would be in a fledgling bird to refuse to trust to its wings and leave the nest, because the poor little thing had read Babinet, and judged aerostation to be impossible on hydrodynamical grounds. Yes; it must be confessed that *if we knew* that the impulse to prefer one hypothesis to another really were analogous to the instincts of birds and wasps, it would be foolish not to give it play, within the bounds of reason; especially since we must entertain some hypothesis, or else forego all further knowledge than that which we have already gained by that very means. But is it a fact that man possesses this magical faculty? Not, I reply, to the extent of guessing right the first time, nor

perhaps the second; but that the well-prepared mind has wonderfully soon guessed each secret of nature, is historical truth. All the theories of science have been so obtained. But may they not have come fortuitously, or by some such modification of chance as the Darwinian supposes? I answer that three or four independent methods of computation show that it would be ridiculous to suppose our science to have so come to pass. Nevertheless, suppose that it can be so "explained," just as that any purposed act of mine is supposed by materialistic necessitarians to have come about. Still, what of it? Does that materialistic explanation, supposing it granted, show that reason has nothing to do with my actions? Even the parallelists will admit that the one explanation leaves the same need of the other that there was before it was given; and this is certainly sound logic. There is a reason, an interpretation, a logic, in the course of scientific advance, and this indisputably proves to him who has perceptions of rational or significant relations, that man's mind must have been attuned to the truth of things in order to discover what he has discovered. It is the very bed-rock of logical truth.

Modern science has been builded after the model of Galileo, who founded it on *il lume naturale*. That truly inspired prophet had said that, of two hypotheses, the *simpler* is to be preferred; but I was formerly one of those who, in our dull self-conceit fancying ourselves more sly than he, twisted the maxim to mean the *logically* simpler, the one that adds the least to what has been observed, in spite of three obvious objections: first, that so there was no support for any hypothesis; secondly, that by the same token we ought to content ourselves with simply formulating the special observations actually made; and thirdly, that every advance of science that further opens the truth to our view discloses a world of unexpected complications. It was not until long experience forced me to realise that subsequent discoveries were every time showing I had been wrong, while those who understood the maxim as Galileo had done, early unlocked the

secret, that the scales fell from my eyes and my mind awoke to the broad and flaming daylight that it is the simpler Hypothesis in the sense of the more facile and natural, the one that instinct suggests, that must be preferred; for the reason that unless man have a natural bent in accordance with nature's, he has no chance of understanding nature at all. Many tests of this principal and positive fact, relating as well to my own studies as to the researches of others, have confirmed me in this opinion; and when I shall come to set them forth in a book, their array will convince everybody. Oh no! I am forgetting that armour, impenetrable by accurate thought, in which the rank and file of minds are clad! They may, for example, get the notion that my proposition involves a denial of the rigidity of the laws of association: it would be quite on a par with much that is current. I do not mean that logical simplicity is a consideration of no value at all, but only that its value is badly secondary to that of simplicity in the other sense.

If, however, the maxim is correct in Galileo's sense, whence it follows that man has, in some degree, a divinitory power, primary or derived, like that of a wasp or a bird, then instances swarm to show that a certain altogether peculiar confidence in a hypothesis, not to be confounded with rash cocksureness, has a very appreciable value as a sign of the truth of the hypothesis. I regret I cannot give an account of certain interesting and almost convincing cases. The N.A. excites this peculiar confidence in the very highest degree.

V.

We have now to apply these principles to the evaluation of the N.A. Had I space I would put this into the shape of imagining how it is likely to be esteemed by three types of men: the first of small instruction with corresponding natural breadth, intimately acquainted with the N.A., but to whom logic is all Greek; the second, inflated with current notions of logic, but prodigiously informed about the N.A.; the

third, a trained man of science who, in the modern spirit, has added to his specialty an exact theoretical and practical study of reasoning and the elements of thought, so that psychologists account him a sort of psychologist, and mathematicians a sort of mathematician.

I should, then, show how the first would have learned that nothing has any kind of value in itself—whether esthetic, moral, or scientific—but only in its place in the whole production to which it appertains; and that an individual soul with its petty agitations and calamities is a zero except as filling its infinitesimal place, and accepting his little futility as his entire treasure. He will see that though his God would not *really* (in a certain sense) adapt means to ends, it is nevertheless quite true that there are relations among phenomena which finite intelligence must interpret, and truly interpret, as such adaptations; and he will macarise himself for his own bitterest griefs, and bless God for the law of growth with all the fighting it imposes upon him—Evil, *i.e.* what it is man's duty to fight, being one of the major perfections of the Universe. In that fight he will endeavour to perform just the duty laid upon him and no more. Though his desperate struggles should issue in the horrors of his rout, and he should see the innocents who are dearest to his heart exposed to torments, frenzy and despair, destined to be smirched with filth, and stunted in their intelligence, still he may hope that it be best *for them*, and will tell himself that in any case the secret design of God will be perfected through their agency; and even while still hot from the battle, will submit with adoration to His Holy will. He will not worry because the Universes were not constructed to suit the scheme of some silly scold.

The context of this I must leave the reader to imagine. I will only add that the third man, considering the complex process of self-control, will see that the hypothesis, irresistible though it be to first intention, yet needs Probation; and that though an infinite being is not tied down to any consistency, yet man, like any other animal, is gifted with power of

understanding sufficient for the conduct of life. This brings him, for testing the hypothesis, to taking his stand upon Pragmaticism, which implies faith in common sense and in instinct, though only as they issue from the cupel-furnace of measured criticism. In short, he will say that the N.A. is the First Stage of a scientific inquiry, resulting in a hypothesis of the very highest Plausibility, whose ultimate test must lie in its value in the self-controlled growth of man's conduct of life.

Since I have employed the word *Pragmaticism*, and shall have occasion to use it once more, it may perhaps be well to explain it. About forty years ago, my studies of Berkeley, Kant, and others led me, after convincing myself that all thinking is performed in Signs, and that meditation takes the form of a dialogue, so that it is proper to speak of the "meaning" of a concept, to conclude that to acquire full mastery of that meaning it is requisite, in the first place, to learn to recognise the concept under every disguise, through extensive familiarity with instances of it. But this, after all, does not imply any true understanding of it; so that it is further requisite that we should make an abstract logical analysis of it into its ultimate elements, or as complete an analysis as we can compass. But, even so, we may still be without any living comprehension of it; and the only way to complete our knowledge of its nature is to discover and recognise just what general habits of conduct, as belief in the truth of the concept (of any conceivable concept) and under any conceivable circumstances) would reasonably develop; that is to say, what habits would ultimately result from a sufficient consideration of such truth. It is necessary to understand the word "conduct," here, in the broadest sense. If, for example, the predication of a given concept were to lead to our admitting that a given form of reasoning concerning the subject of which it was affirmed was valid, when it would not otherwise be valid, the recognition of that effect in our reasoning would decidedly be a habit of conduct.

In 1871, in a Metaphysical Club in Cambridge, Mass., I used to preach this principle as a sort of logical gospel, representing the unformulated method followed by Berkeley, and in conversation about it I called it "Pragmatism." In December 1877 and January 1878 I set forth the doctrine in the *Popular Science Monthly*; and the two parts of my essay were printed in French in the *Revue Philosophique*, volumes vi. and vii. Of course, the doctrine attracted no particular attention, for, as I had remarked in my opening sentence, very few people care for logic. But in 1897 Professor James remodelled the matter, and transmogrified it into a doctrine of philosophy, some parts of which I highly approved, while other and more prominent parts I regarded, and still regard, as opposed to sound logic. About the time Professor Papirie discovered, to the delight of the Pragmatist school, that this doctrine was incapable of definition, which would certainly seem to distinguish it from every other doctrine in whatever branch of science, I was coming to the conclusion that my poor little maxim should be called by another name; and accordingly, in April 1905, I renamed it *Pragmaticism*. I had never before dignified it by any name in print, except that, at Professor Baldwin's request, I wrote a definition of it for his *Dictionary of Psychology and Philosophy*. I did not insert the word in the *Century Dictionary*, though I had charge of the philosophical definitions of that work; for I have a perhaps exaggerated dislike of *réclame*.

It is that course of meditation upon the three Universes which gives birth to the hypothesis and ultimately to the belief that they, or at any rate two of the three, have a Creator independent of them, that I have throughout this article called the N.A., because I think the theologians ought to have recognised it as a line of thought reasonably productive of belief. This is the "humble" argument, the innermost of the nest. In the mind of a metaphysician it will have a metaphysical tinge; but that seems to me rather to detract from its force than to add anything to it. It is just as good

an argument, if not better, in the form it takes in the mind of the clodhopper.

The theologians could not have *presented* the N.A.; because that is a living course of thought of very various forms. But they might and ought to have *described* it, and should have defended it, too, as far as they could, without going into original logical researches, which could not be justly expected of them. They are accustomed to make use of the principle that that which convinces a normal man must be presumed to be sound reasoning; and therefore they ought to say whatever can truly be advanced to show that the N.A., if sufficiently developed, will convince any normal man. Unfortunately, it happens that there is very little established fact to show that this is the case. I have not pretended to have any other ground for my belief that it is so than my assumption, which each one of us makes, that my own intellectual disposition is normal. I am forced to confess that no pessimist will agree with me. I do not admit that pessimists are, at the same time, thoroughly sane, and in addition are endowed in normal measure with intellectual vigour; and my reasons for thinking so are two. The first is, that the difference between a pessimistic and an optimistic mind is of such controlling importance in regard to every intellectual function, and especially for the conduct of life, that it is out of the question to admit that both are normal, and the great majority of mankind are naturally optimistic. Now, the majority of every race depart but little from the norm of that race. In order to present my other reason, I am obliged to recognise three types of pessimists. The first type is often found in exquisite and noble natures of great force of original intellect whose own lives are dreadful histories of torment due to some physical malady. Leopardi is a famous example. We cannot but believe, against their earnest protests, that if such men had had ordinary health, life would have worn for them the same colour as for the rest of us. Meantime, one meets too few pessimists of this type to affect the present question.

The second is the misanthropical type, the type that makes itself heard. It suffices to call to mind the conduct of the famous pessimists of this kind, Diogenes the Cynic, Schopenhauer, Carlyle, and their kin with Shakespeare's Timon of Athens, to recognise them as diseased minds. The third is the philanthropical type, people whose lively sympathies, easily excited, become roused to anger at what they consider the stupid injustices of life. Being easily interested in everything, without being overloaded with exact thought of any kind, they are excellent raw material for *littérateurs*: witness Voltaire. No individual remotely approaching the calibre of a Leibniz is to be found among them.

The third argument, enclosing and defending the other two, consists in the development of those principles of logic according to which the humble argument is the first stage of a scientific inquiry into the origin of the three Universes, but of an inquiry which produces, not merely scientific belief, which is always provisional, but also a living, practical belief, logically justified in crossing the Rubicon with all the freightage of eternity. The presentation of this argument would require the establishment of several principles of logic that the logicians have hardly dreamed of, and particularly a strict proof of the correctness of the maxim of Pragmaticism. My original essay, having been written for a popular monthly, assumes, for no better reason than that real inquiry cannot begin until a state of real doubt arises and ends as soon as Belief is attained, that "a settlement of Belief," or, in other words, a state of *satisfaction*, is all that Truth, or the aim of inquiry, consists in. The reason I gave for this was so flimsy, while the inference was so nearly the gist of Pragmaticism, that I must confess the argument of that essay might with some justice be said to beg the question. The first part of the essay, however, is occupied with showing that, if Truth consists in satisfaction, it cannot be any *actual* satisfaction, but must be the satisfaction which *would* ultimately be found if the inquiry were pushed to its ultimate and indefeasible

issue. This, I beg to point out, is a very different position from that of Mr Schiller and the pragmatists of to-day. I trust I shall be believed when I say that it is only a desire to avoid being misunderstood in consequence of my relations with pragmatism, and by no means as arrogating any superior immunity from error which I have too good reason to know that I do not enjoy, that leads me to express my personal sentiments about their tenets. Their avowedly undefinable position, if it be not capable of logical characterisation, seems to me to be characterised by an angry hatred of strict logic, and even some disposition to rate any exact thought which interferes with their doctrines as all humbug. At the same time, it seems to me clear that their approximate acceptance of the Pragmaticist principle, and even that very casting aside of difficult distinctions (although I cannot approve of it), has helped them to a mightily clear discernment of some fundamental truths that other philosophers have seen but through a mist, and most of them not at all. Among such truths—all of them old, of course, yet acknowledged by few—I reckon their denial of necessitarianism; their rejection of any "consciousness" different from a visceral or other external sensation; their acknowledgment that there are, in a Pragmatistical sense, Real habits (which Really *would* produce effects, under circumstances that may not happen to get actualised, and are thus Real generals); and their insistence upon interpreting all hypostatic abstractions in terms of what they *would* or *might* (not actually *will*) come to in the concrete. It seems to me a pity they should allow a philosophy so instinct with life to become infected with seeds of death in such notions as that of the unreality of all ideas of infinity and that of the mutability of truth, and in such confusions of thought as that of active willing (willing to control thought, to doubt, and to weigh reasons) with willing not to exert the will (willing to believe).

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