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A PRAGMATIC CONCEPTION OF THE *A PRIORI*.[1]

THE conception of the *a priori* points two problems which are perennial in philosophy; the part played in knowledge by the mind itself, and the possibility of "necessary truth" or of knowledge "independent of experience." But traditional conceptions of the *a priori* have proved untenable. That the mind approaches the flux of immediacy with some godlike foreknowledge of principles which are legislative for experience, that there is any natural light or any innate ideas, it is no longer possible to believe.

Nor shall we find the clue to the *a priori* in any compulsion of the mind to incontrovertible truth or any peculiar kind of demonstration which establishes first principles. All truth lays upon the rational mind the same compulsion to belief; as Mr. Bosanquet has pointed out, this character belongs to all propositions or judgments once their truth is established.

The difficulties of the conception are due, I believe, to two mistakes: whatever is *a priori* is necessary, but we have misconstrued the relation of necessary truth to mind. And the *a priori* is independent of experience, but in so taking it, we have misunderstood its relation to empirical fact. What is *a priori* is necessary truth not because it compels the mind's acceptance, but precisely because it does not. It is given experience, brute fact, the *a posteriori* element in knowledge which the mind must accept willy-nilly. The *a priori* represents an attitude in some sense freely taken, a stipulation of the mind itself, and a stipulation which might be made in some other way if it suited our bent or need. Such truth is necessary as opposed to contingent, not as opposed to voluntary. And the *a priori* is independent of experience not because it prescribes a form which the data of sense must fit, or anticipates some preëstablished harmony of experience with the mind, but precisely because it prescribes nothing to experience. That is *a priori* which is true, *no matter what*. What it anticipates is not the given, but our attitude toward it: it concerns the uncompelled initiative of mind or, as Josiah Royce would say, our categorical ways of acting.

[1] Read at the meeting of the American Philosophical Association, Dec. 27, 1922.

The traditional example of the *a priori par excellence* is the laws of logic. These can not be derived from experience since they must first be taken for granted in order to prove them. They make explicit our general modes of classification. And they impose upon experience no real limitation. Sometimes we are asked to tremble before the spectre of the "alogical," in order that we may thereafter rejoice that we are saved from this by the dependence of reality upon mind. But the "alogical" is pure bogey, a word without a meaning. What kind of experience could defy the principle that everything must either be or not be, that nothing can both be and not be, or that if x is y and y is z, then x is z? If anything imaginable or unimaginable could violate such laws, then the ever-present fact of change would do it every day. The laws of logic are purely formal; they forbid nothing but what concerns the use of terms and the corresponding modes of classification and analysis. The law of contradiction tells us that nothing can be both white and not-white, but it does not and can not tell us whether black is not-white, or soft or square is not-white. To discover *what contradicts what* we must always consult the character of experience. Similarly the law of the excluded middle formulates our decision that whatever is not designated by a certain term shall be designated by its negative. It declares our purpose to make, for every term, a complete dichotomy of experience, instead—as we might choose—of classifying on the basis of a tripartite division into opposites (as black and white) and the middle ground between the two. Our rejection of such tripartite division represents only our penchant for simplicity.

Further laws of logic are of similar significance. They are principles of procedure, the parliamentary rules of intelligent thought and speech. Such laws are independent of experience because they impose no limitations whatever upon it. They are legislative because they are addressed to ourselves—because definition, classification, and inference represent no operations of the objective world, but only our own categorical attitudes of mind.

And further, the ultimate criteria of the laws of logic are pragmatic. Those who suppose that there is, for example, *a* logic which everyone would agree to if he understood it and understood himself, are more optimistic than those versed in the history of logical discussion have a right to be. The fact is that there are several logics, markedly different, each self-consistent in its own terms and such that whoever, using it, avoids false premises, will never reach a false conclusion. Mr. Russell, for example, bases *his* logic on an implication relation such that if twenty sentences be cut from a newspaper and put in a hat, and then two of these be drawn at

random, one of them will certainly imply the other, and it is an even bet that the implication will be mutual. Yet upon a foundation so remote from ordinary modes of inference the whole structure of *Principia Mathematica* is built. This logic—and there are others even more strange—is utterly consistent and the results of it entirely valid. Over and above all questions of consistency, there are issues of logic which can not be determined—nay, can not even be argued—except on pragmatic grounds of conformity to human bent and intellectual convenience. That we have been blind to this fact, itself reflects traditional errors in the conception of the *a priori*.

We may note in passing one less important illustration of the *a priori*—the proposition "true by definition." Definitions and their immediate consequences, analytic propositions generally, are necessarily true, true under all possible circumstances. Definition is legislative because it is in some sense arbitrary. Not only is the meaning assigned to words more or less a matter of choice—that consideration is relatively trivial—but the manner in which the precise classifications which definition embodies shall be effected, is something not dictated by experience. If experience were other than it is, the definition and its corresponding classification might be inconvenient, fantastic, or useless, but it could not be false. Mind makes classifications and determines meanings; in so doing it creates the *a priori* truth of analytic judgments. But that the manner of this creation responds to pragmatic considerations, is so obvious that it hardly needs pointing out.

If the illustrations so far given seem trivial or verbal, that impression may be corrected by turning to the place which the *a priori* has in mathematics and in natural science. Arithmetic, for example, depends *en toto* upon the operation of counting or correlating, a procedure which can be carried out at will in any world containing identifiable things—even identifiable ideas—regardless of the further characters of experience. Mill challenged this *a priori* character of arithmetic. He asked us to suppose a demon sufficiently powerful and maleficient so that every time two things were brought together with two other things, this demon should always introduce a fifth. The implication which he supposed to follow is that under such circumstances $2 + 2 = 5$ would be a universal law of arithmetic. But Mill was quite mistaken. In such a world we should be obliged to become a little clearer than is usual about the distinction between arithmetic and physics, that is all. If two black marbles were put in the same urn with two white ones, the demon could take his choice of colors, but it would be evident that there were more black marbles or more white ones than were

put in. The same would be true of all objects in any wise identifiable. We should simply find ourselves in the presence of an extraordinary physical law, which we should recognize as universal in our world, that whenever two things were brought into proximity with two others, an additional and similar thing was always created by the process. Mill's world would be physically most extraordinary. The world's work would be enormously facilitated if hats or locomotives or tons of coal could be thus multiplied by anyone possessed originally of two pairs. But the laws of mathematics would remain unaltered. It is because this is true that arithmetic is *a priori*. Its laws prevent *nothing;* they are compatible with anything which happens or could conceivably happen in nature. They would be true in any possible world. Mathematical addition is not a physical transformation. Physical changes which result in an increase or decrease of the countable things involved are matters of everyday occurrence. Such physical processes present us with phenomena in which the purely mathematical has to be separated out by abstraction. Those laws and those laws only have necessary truth which we are prepared to maintain, no matter what. It is because we shall always separate out that part of the phenomenon not in conformity with arithmetic and designate it by some other category—physical change, chemical reaction, optical illusion—that arithmetic is *a priori*.

The *a priori* element in science and in natural law is greater than might be supposed. In the first place, all science is based upon definitive concepts. The formulation of these concepts is, indeed, a matter determined by the commerce between our intellectual or our pragmatic interests and the nature of experience. Definition is classification. The scientific search is for such classification as will make it possible to correlate appearance and behavior, to discover law, to penetrate to the "essential nature" of things in order that behavior may become predictable. In other words, if definition is unsuccessful, as early scientific definitions mostly have been, it is because the classification thus set up corresponds with no natural cleavage and does not correlate with any important uniformity of behavior. A name itself must represent *some* uniformity in experience or it names nothing. What does not repeat itself or recur in intelligible fashion is not a thing. Where the definitive uniformity is a clue to other uniformities, we have successful scientific definition. Other definitions can not be said to be false; they are merely useless. In scientific classification the search is, thus, for *things worth naming*. But the naming, classifying, defining activity is essentially prior to investigation. We can not interrogate experience in general. Until our meaning is definite and our classification

correspondingly exact, experience can not conceivably answer our questions.

In the second place, the fundamental laws of any science—or those treated as fundamental—are *a priori* because they formulate just such definitive concepts or categorical tests by which alone investigation becomes possible. If the lightning strikes the railroad track at two places, A and B, how shall we tell whether these events are simultaneous? "We . . . require a definition of simultaneity such that this definition supplies us with the method by means of which . . . we can decide whether or not both the lightning strokes occurred simultaneously. As long as this requirement is not satisfied, I allow myself to be deceived as a physicist (and of course the same applies if I am not a physicist), when I imagine that I am able to attach a meaning to the statement of simultaneity. . . .

"After thinking the matter over for some time you then offer the following suggestion with which to test simultaneity. By measuring along the rails, the connecting line AB should be measured up and an observer placed at the mid-point M of the distance AB. This observer should be supplied with an arrangement (*e.g.*, two mirrors inclined at 90°) which allows him visually to observe both places A and B at the same time. If the observer perceives the two flashes at the same time, then they are simultaneous.

"I am very pleased with this suggestion, but for all that I can not regard the matter as quite settled, because I feel constrained to raise the following objection: 'Your definition would certainly be right, if I only knew that the light by means of which the observer at M perceives the lightning flashes travels along the length $A—M$ with the same velocity as along the length $B—M$. But an examination of this supposition would only be possible if we already had at our disposal the means of measuring time. It would thus appear as though we were moving here in a logical circle.'

"After further consideration you cast a somewhat disdainful glance at me—and rightly so—and you declare: 'I maintain my previous definition nevertheless, because in reality it assumes absolutely nothing about light. There is only *one* demand to be made of the definition of simultaneity, namely, that in every real case it must supply us with an empirical decision as to whether or not the conception which has to be defined is fulfilled. That light requires the same time to traverse the path $A—M$ as for the path $B—M$ is in reality *neither a supposition nor a hypothesis* about the physical nature of light, but a *stipulation* which I can make of my own free-will in order to arrive at a definition of simultaneity.' . . . We are thus led also to a definition of 'time' in physics."[2]

[2] Einstein, *Relativity*, pp. 26–28: italics are the author's.

As this example from the theory of relatively well illustrates, we can not even ask the questions which discovered law would answer until we have first by *a priori* stipulation formulated definitive criteria. Such concepts are not verbal definitions, nor classifications merely; they are themselves laws which prescribe a certain uniformity of behavior to whatever is thus named. Such definitive laws are *a priori;* only so can we enter upon the investigation by which further laws are sought. Yet it should also be pointed out that such *a priori* laws are subject to abandonment if the structure which is built upon them does not succeed in simplifying our interpretation of phenomena. If, in the illustration given, the relation "simultaneous with," as defined, should not prove transitive—if event *A* should prove simultaneous with *B*, and *B* with *C*, but not *A* with *C*—this definition would certainly be rejected.

And thirdly, there is that *a priori* element in science—as in other human affairs—which constitutes the criteria of the real as opposed to the unreal in experience. An object itself is a uniformity. Failure to behave in certain categorical ways marks it as unreal. Uniformities of the type called "natural law" are the clues to reality and unreality. A mouse which disappears where no hole is, is no real mouse; a landscape which recedes as we approach is but illusion. As the queen remarked in the episode of the wishing-carpet; "If this were real, then it would be a miracle. But miracles do not happen. Therefore I shall wake presently." That the uniformities of natural law are the only reliable criteria of the real, is inescapable. But such a criterion is *ipso facto a priori.* No conceivable experience could dictate the alteration of a law so long as failure to obey that law marked the content of experience as unreal.

This is one of the puzzles of empiricism. We deal with experience: what any reality may be which underlies experience, we have to learn. What we desire to discover is natural law, the formulation of those uniformities which obtain amongst the real. But experience as it comes to us contains not only the real but all the content of illusion, dream, hallucination, and mistake. The *given* contains both real and unreal, confusingly intermingled. If we ask for uniformities of this unsorted experience, we shall not find them. Laws which characterize all experience, of real and unreal both, are non-existent and would in any case be worthless. What we seek are the uniformities of the *real;* but *until we have such laws, we can not sift experience and segregate the real.*

The obvious solution is that the enrichment of experience, the separation of the real from the illusory or meaningless, and the formulation of natural law, all grow up together. If the criteria of the

real are *a priori,* that is not to say that no conceivable character of experience would lead to alteration of them. For example, spirits can not be photographed. But if photographs of spiritistic phenomena, taken under properly guarded conditions, should become sufficiently frequent, this *a priori* dictum would be called in question. What we should do would be to redefine our terms. Whether "spook" was spirit or matter, whether the definition of "spirit" or of "matter" should be changed; all this would constitute one interrelated problem. We should reopen together the question of definition or classifiation, of criteria for this sort of real, and of natural law. And the solution of one of these would mean the solution of all. Nothing could *force* a redefinition of spirit or of matter. A sufficiently fundamental relation to human bent, to human interests, would guarantee continuance unaltered even in the face of unintelligible and baffling experiences. In such problems, the mind finds itself uncompelled save by its own purposes and needs. I *may* categorize experience as I will; but *what* categorical distinctions will best serve my interests and objectify my own intelligence? What the mixed and troubled experience shall be—that is beyond me. But what I shall do with it—that is my own question, when the character of experience is sufficiently before me. I am coerced only by my own need to understand.

It would indeed be inappropriate to characterize as *a priori* a law which we are wholly prepared to alter in the light of further experience, even though in an isolated case we should discard as illusory any experience which failed to conform. But the crux of the situation lies in this; beyond such principles as those of logic, which we seem fully prepared to maintain no matter what, there must be further and more particular criteria of the real prior to any investigation of nature whatever. We can not even interrogate experience without a network of categories and definitive concepts. And we must further be prepared to say what experimental findings will answer what questions, and how. Without tests which represent anterior principle, there is no question which experience could answer at all. Thus the most fundamental laws in any category—or those which we regard as most fundamental—are *a priori,* even though continued failure to render experience intelligible in such terms might result eventually in the abandonment of that category altogether. Matters so comparatively small as the behavior of Mercury and of starlight passing the sun's limb may, if there be persistent failure to bring them within the field of previously accepted modes of explanation, result in the abandonment of the independent categories of space and time. But without the definitions, fundamental principles, and tests, of the type which constitute such categories, no experience

whatever could prove or disprove anything. And to that mind which should find independent space and time absolutely necessary conceptions, no possible experiment could prove the principles of relativity. "There must be some error in the experimental findings, or some law not yet discovered," represents an attitude which can never be rendered impossible. And the only sense in which it could be proved unreasonable would be the pragmatic one of comparison with another method of categorical analysis which more successfully reduced all such experience to order and law.

At the bottom of all science and all knowledge are categories and definitive concepts which represent fundamental habits of thought and deep-lying attitudes which the human mind has taken in the light of its total experience. But a new and wider experience may bring about some alteration of these attitudes, even though by themselves they dictate nothing as to the content of experience, and no experience can conceivably prove them invalid.

Perhaps some will object to this conception on the ground that only such principles should be designated *a priori* as the human mind *must* maintain, no matter what; that if, for example, it is shown possible to arrive at a consistent doctrine of physics in terms of relativity, even by the most arduous reconstruction of our fundamental notions, then the present conceptions are by that fact shown not to be *a priori*. Such objection is especially likely from those who would conceive the *a priori* in terms of an absolute mind or an absolutely universal human nature. We should readily agree that a decision by popular approval or a congress of scientists or anything short of such a test as would bring to bear the full weight of human capacity and interest, would be ill-considered as having to do with the *a priori*. But we wish to emphasize two facts: first, that in the field of those conceptions and principles which have altered in human history, there are those which could neither be proved nor disproved by any experience, but represent the uncompelled initiative of human thought—that without this uncompelled initiative no growth of science, nor any science at all, would be conceivable. And second, that the difference between such conceptions as are, for example, concerned in the decision of relativity versus absolute space and time, and those more permanent attitudes such as are vested in the laws of logic, there is only a difference of degree. The dividing line between the *a priori* and the *a posteriori* is that between principles and definitive concepts which *can* be maintained in the face of all experience and those genuinely empirical generalizations which *might* be proven flatly false. The thought which both rationalism and empiricism have missed is that there are principles, representing the initiative of mind, which impose

upon experience no limitations whatever, but that such conceptions are still subject to alteration on pragmatic grounds when the expanding boundaries of experience reveal their infelicity as intellectual instruments.

Neither human experience nor the human mind has a character which is universal, fixed, and absolute. "The human mind" does not exist at all save in the sense that all humans are very much alike in fundamental respects, and that the language habit and the enormously important exchange of ideas has greatly increased our likeness in those respects which are here in question. Our categories and definitions are peculiarly social products, reached in the light of experiences which have much in common, and beaten out, like other pathways, by the coincidence of human purposes and the exigencies of human coöperation. Concerning the *a priori* there need be neither universal agreement nor complete historical continuity. Conceptions, such as those of logic, which are least likely to be affected by the opening of new ranges of experience, represent the most stable of our categories; but none of them is beyond the possibility of alteration.

Mind contributes to experience the element of order, of classification, categories, and definition. Without such, experience would be unintelligible. Our knowledge of the validity of these is simply consciousness of our own fundamental ways of acting and our own intellectual intent. Without this element, knowledge is impossible, and it is here that whatever truths are necessary and independent of experience must be found. But the commerce between our categorical ways of acting, our pragmatic interests, and the particular character of experience, is closer than we have realized. No explanation of any one of these can be complete without consideration of the other two.

Pragmatism has sometimes been charged with oscillating between two contrary notions; the one, that experience is "through and through malleable to our purpose," the other, that facts are "hard" and uncreated by the mind. We here offer a mediating conception: through all our knowledge runs the element of the *a priori*, which is indeed malleable to our purpose and responsive to our need. But throughout, there is also that other element of experience which is "hard," "independent," and unalterable to our will.

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