

The Myth of Passage

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THE MYTH OF PASSAGE ¹

AT every moment each of us finds himself the apparent center of the world, enjoying a little foreground of the here and now, while around him there looms, thing beyond thing, event beyond event, the plethora of a universe. Linking the furniture of the foreground are sets of relations which he supposes also to bind the things beyond and to bind the foreground with the rest. Noteworthy among them are those queerly obvious relations, peculiarly external to their terms, which compose the systems of space and time, modes of connection exhaustively specifiable in a scheme of four dimensions at right angles to one another. Within this manifold, for all that it is so firmly integrated, we are immediately struck by a disparity between the three-dimensional spread of space and the one dimension of time. The spatial dimensions are in a literal and precise sense perpendicular to one another, and the sub-manifold which they compose is isotropic, the same in all directions. The one dimension of time, on the other hand, although it has the same formal properties as each of the other three, is at least sensuously different from them as they are not from one another, and the total manifold is apparently not isotropic. Whereas an object can preserve the same shape while it is so shifted that its height becomes its breadth, we can not easily conceive how it could do so while being shifted so that its breadth becomes its duration.

The theory of the manifold, I think, is the one model on which we can describe and explain the foreground of experience, or can intelligibly and credibly construct our account of the rest of the world, and this is so because in fact the universe is spread out in those dimensions. There may be Platonic entities which are foreign to both space and time; there may be Cartesian spirits which are foreign to space; but the homely realm of natural existence, the total of world history, is a spatio-temporal volume, of somewhat uncertain magnitude, chockablock with things and events. Logic, with its law of excluded middle and its tenseless operators, and natural science, with its secular world charts,

¹ Read at a meeting of the Metaphysical Society of America, Barnard College, New York, February 24, 1951.

concur inexorably with the vision of metaphysics and high religion that truth and fact are thus eternal.

I believe that the universe consists, without residue, of the spread of events in space-time, and that if we thus accept realistically the four-dimensional fabric of juxtaposed actualities we can dispense with all those dim non-factual categories which have so bedevilled our race: the potential, the subsistential, and the influential, the noumenal, the numinous, and the non-natural. But I am arguing here, not that there is nothing outside the natural world of events, but that the theory of the manifold is anyhow literally true and adequate to that world.

The chink in the armor of the theory is supposed to be on the side of time. Sir James Jeans regretted that time is mathematically attached to space by so "weird" a function as the square root of minus one,² and the very word "weird," being cognate with "*werden*," *to become*, is a monument to the uncanniness of our fourth dimension. Perhaps there exists an intellectualistic solipsist who grants the propriety of conceiving a temporal stretch of events, to wit, his own whole inner biography, while denying that the spatial scheme is a literal truth about anything. Most of the disparagers of the manifold, however, are of opposite bias. Often ready enough to take literally the spatial extension of the world, they dispute the codicil which rounds it out in the dimension of time. They do not intend this as a disparagement of time. On the contrary, they are what Wyndham Lewis (in *Time and Western Man*) called "time snobs." They plume themselves that by refusing to time the dimensional status they alone are "taking time seriously."

The partisans of time often take it with such Spartan seriousness that they deny existence to virtually all of it—to all of it, in short, but the infinitesimal pulse of the present. If we may interpret strictly some characteristic statements of Schopenhauer and the late Professor Mead,³ for example, they would have it that the totality of being consists of the set of events which are simultaneous with the utterance "*now*," and most of the schools which are loosely called "romantic" would seem committed at heart to the same conclusion. This, of course, is incredible in point of psychology, for nobody can help believing at any moment that it has predecessors and successors. Also, it is incredible in point of logic, not just because induction tells us the contrary,

² *The Mysterious Universe*, New York, 1930, p. 118.

³ *Die Welt als Wille und Vorstellung*, Bk. 4, Sect. 54; *The Philosophy of the Present*, Chicago, 1932.

but deductively, because a concrete object can no more exist with zero duration than with zero breadth and length.

One motive for the paradoxical philosophy of the present is the general romantic polemic against logic and the competence of concepts. The theory of the manifold is the logical account of events *par excellence*, the teeth by which the jaws of the intellect grip the flesh of occurrence. The Bergsonian, who thinks that concepts can not convey the reality of time because they are "static," and the Marxist who thinks that process defies the cadres of two-valued logic, have thus an incentive for denying, in effect, all of the temporal universe except the present flash and urge. To counter their attack, it is a nice and tempting question whether and how concepts are "static," and whether and how, in any case, a true concept must be similar to its object. But we can not here undertake the whole defense of the intellect against its most radical critics. We shall rather notice those two main motives for trimming down the time system which affect to utilize conceptual analysis and do not outright condemn it. One of them is an extreme sharpening of the positivistic argument from the egocentric predication. For if it is impossible for my concepts to transcend experience in general, it may well be impossible for them to transcend the momentary experience in which they are entertained. Conversely, however, anybody who rejects the arguments for instantaneous solipsism, as most people do, must reject this argument for diminishing the manifold. The remaining motive is the finding of an intolerable anomaly in the statement that what was but has ceased, or what will be but has not begun, nevertheless *is*. Although equally cogent against the past and the future, this sort of reflection has generally been used, as by Aristotle, by certain neo-scholastics, by C. D. Broad, and by Professors Weiss and Hartshorne, to deny the reality only of the future, while preserving the past. I have contended elsewhere⁴ that the argument is in any case invalid, because it mistakes for an ontological absolute the semantical accident that the significance of Indo-European verbs is generally complicated by *tenses*. Thus when I replace the colloquial "There will be a sea fight tomorrow" with the logically proper "There is a sea fight tomorrow," I seem to be making, not the innocuous assertion that there is a sea fight and it is located in

⁴"The Sea Fight Tomorrow," in *Structure, Method, and Meaning: Essays in Honor of Henry M. Sheffer*, New York, 1951. The argument there is mainly that the world of natural events anyhow embraces no less than the eternal manifold; my argument below is mainly that it involves no more.

the world manifold one day later than the utterance, but the contradiction that it is both on the same day with the utterance and on the latter day. Strictly, of course, the statement today that there is a sea fight tomorrow no more means that tomorrow's sea fight is today than the statement, in New York, that there are pyramids in Egypt, means that the pyramids are in New York.

Let us assume now provisionally that the theory of the manifold is at least true as far as it goes. The temporalist must shorten his lines, then, and insist that, even so, it is not adequate: the time axis is not the whole story, is not "real time" not "the genuine creative flux." If he means by this that the theory of temporal extension, along with the spatial models provided by calendars, kymographs, and statistical time charts, is in the last analysis fictitious, corresponding to nothing in the facts, he is reverting, under a thin cloak of dissimulation, to the mere rejection which we have agreed to leave aside. If he means, at the other extreme, no more than that the theory and the models themselves are not identical, either numerically or qualitatively, with the actual temporal succession which they represent, he is uttering a triviality which is true of every theory or representation. If he means that the temporal spread, though real and formally similar to a spatial spread, is qualitatively or intuitively very different from it, or lies in a palpably and absolutely unique direction, he says something plausible and important but not at all incompatible with the philosophy of the manifold. He is most likely to mean, however, another proposition which is never more than vaguely expressed: that over and above the sheer spread of events, with their several qualities, along the time axis, which is analogous enough to the spread of space, there is something extra, something active and dynamic, which is often and perhaps best described as "passage." This something extra I think is a myth: not one of those myths which foreshadow a difficult truth in a metaphorical way, but one which is fundamentally false, deceiving us about the facts, and blocking our understanding of them.

The literature of "passage" is immense, but it is naturally not very exact and lucid, and we can not be sure of distinguishing in it between mere harmless metaphorical phenomenology and the special metaphysical declaration which I criticize. But "passage," it would seem, is a character supposed to inhabit and glorify the present, "the passing present,"⁵ "the moving present,"⁶ the

⁵ William Dennes, "Time as Datum and as Construction," in *The Problem of Time*, Berkeley, 1935, p. 103.

⁶ Isabel Stearns, "Time and the Timeless," *Review of Metaphysics*, Vol. 4 (1950), p. 198.

"travelling now."⁷ It is "the passage of time as actual . . . given now with the jerky or whooshy quality of transience."⁸ It is James's "passing moment."⁹ It is what Broad calls "the transitory aspect" of time, in contrast with the "extensive."¹⁰ It is Bergson's living felt duration. It is Heidegger's *Zeitlichkeit*. It is Tillich's "moment that is creation and fate."¹¹ It is "the act of becoming," the mode of potency and generation, which Mr. Hugh King finds properly appreciated only by Aristotle and Whitehead.¹² It is Eddington's "ongoing" and "the formality of taking place,"¹³ and Dennes's "surge of process."¹⁴ It is the dynamic essence which Professor Ushenko believes that Einstein omits from the world.¹⁵ It is the mainspring of McTaggart's "A-series" which puts movement in time,¹⁶ and it is Broad's pure becoming.¹⁷ Withal it is the flow and go of very existence, nearer to us than breathing, closer than hands and feet.

So far as one can interpret these expressions into a theory, they have the same purport as all the immemorial turns of speech by which we describe time as *moving*, with respect to the present or with respect to our minds. Time flows or flies or marches, years roll, hours pass. More explicitly we may speak as if the perceiving mind were stationary while time flows by like a river, with the flotsam of events upon it; or as if presentness were a fixed pointer under which the tape of happenings slides; or as if the time sequence were a moving-picture film, unwinding from the dark reel of the future, projected briefly on the screen of the present, and rewound into the dark can of the past. Sometimes, again, we speak as if the time sequence were a stationary plain or ocean on which we voyage, or a variegated river gorge down which we drift; or, in Broad's analogy, as if it were a row of housefronts

⁷ George Santayana, *Realms of Being*, New York, 1942, p. 258.

⁸ Clarence Lewis, *An Analysis of Knowledge and Valuation*, La Salle, 1946, p. 19. This is pretty surely phenomenology, not metaphysics, but it is too good to omit.

⁹ *A Pluralistic Universe*, New York, 1928, p. 254.

¹⁰ *Examination of McTaggart's Philosophy*, Cambridge, 1938, Vol. II, Pt. I, p. 271.

¹¹ Paul Tillich, *The Interpretation of History*, New York, 1936, p. 129.

¹² Hugh R. King, "Aristotle and the Paradoxes of Zeno," this JOURNAL, Vol. XLVI (1949), pp. 657-670. This is an exceptionally ingenious, serious, and explicit statement of the philosophy which I am opposing.

¹³ *Space, Time, and Gravitation*, 1920, p. 51; *The Nature of the Physical World*, 1928, p. 68.

¹⁴ "Time as Datum and as Construction," pp. 91, 93.

¹⁵ A. P. Ushenko, *Power and Events*, Princeton, 1949, p. 146.

¹⁶ *The Nature of Existence*, Vol. II, Book v, Chap. 33.

¹⁷ *Scientific Thought*, 1923, p. 67; *Examination of McTaggart*, p. 277.

along which the spotlight of the present plays. "The essence of nowness," Santayana says, "runs like fire along the fuse of time."¹⁸ Augustine pictures the present passing into the past, where the modern pictures the present as invading the future,¹⁹ but these do not conflict, for Augustine means that the *events* which were present become past, while the modern means that *presentness* encroaches on what was previously the future. Sometimes the surge of presentness is conceived as a mere moving illumination by consciousness, sometimes as a sort of vivification and heightening, like an ocean wave heaving along beneath a stagnant expanse of floating seaweed, sometimes as no less than the boon of existence itself, reifying minute by minute a limbo of unthings.

The doctrine of the moving present has some startling applications, notably in the idea of a time machine. The theory of the four-dimensional manifold seemed already an invitation to the notion of time travel, and the additional idea that we move with respect to time confirms it. For if I normally voyage through time in a single direction at a fixed rate, I can hope to make a machine which will enable me to voyage slower or faster or backward.

Now, the most remarkable feature of all this is that while the modes of speech and thought which enshrine the idea of passage are universal and perhaps ineradicable, the instant one thinks about them one feels uneasy, and the most laborious effort can not construct an intelligible theory which admits the literal truth of any of them. McTaggart was driven to deny the reality of time because he believed that while time must combine the dimensional spread with the fact of passage, the B-series with the A-series, every attempt to reconcile the two ended in absurdity. Broad can only cling to the hope that a better reconciliation may yet be found. My present thesis would resolve the antinomy by rejecting the extra idea of passage as spurious altogether.

The obvious and notorious fault of the idea, as we have now localized it, is this. Motion is already defined and explained in the dimensional manifold as consisting of the presence of the same individual in different places at different times. It consists of bends or quirks in the world lines, or the space-time worm, which is the four-dimensioned totality of the individual's existence. This is motion in space, if you like; but we can readily define a

¹⁸ *Realms of Being*, p. 491.

¹⁹ Augustine, *Confessions*, Book XI, Chap. 14; cf. E. B. McGilvary, "Time and the Experience of Time," in *An Anthology of Recent Philosophy*, ed. Robinson, New York, 1929.

corresponding "motion in time." It comes out as nothing more dramatic than an exact equivalent: "motion in time" consists of being at different times in different places. True motion then is motion at once in time and space. Nothing can "move" in time alone any more than in space alone, and time itself can not "move" any more than space itself. "Does this road go anywhere?" asks the city tourist. "No, it stays right along here," replies the countryman. Time "flows" only in the sense in which a line flows or a landscape "recedes into the west." That is, it is an ordered extension. And each of us proceeds through time only as a fence proceeds across a farm: that is, parts of our being, and the fence's, occupy successive instants and points, respectively. There is passage, but it is nothing extra. It is the mere happening of things, their strung-along-ness in the manifold. The term "the present" is the conventional way of designating the cross-section of events which are simultaneous with the uttering of the phrase, and "the present moves" only in that when similar words occur at successively different moments, they denote, by a twist of language, different cross-sections of the manifold. Time travel, then, is analyzable either as the banality that at each different moment we occupy a different moment from the one we occupied before, or the contradiction that at each different moment we occupy a different moment from the one which we are then occupying—that five minutes from now, for example, I may be a hundred years from now.²⁰

The tragedy then of the extra idea of passage or absolute becoming, as a philosophical principle, is that it incomprehensibly doubles its world by re-introducing terms like "moving" and "becoming" in a sense which both requires and forbids interpretation in the preceding ways. For as soon as we say that time or the present or we move in the odd extra way which the doctrine of passage requires, we have no recourse but to suppose that this movement in turn takes time of a special sort: time₁ move at a certain rate in time₂, perhaps one second₁ per one second₂, perhaps slower, perhaps faster. Or, conversely, the moving present slides over so many seconds of time₁ in so many seconds of time₂. The history of the new moving present, in time₂, then composes a new

²⁰ "He may even now—if I may use the phrase—be wandering on some plesiosaurus-haunted oolitic coral reef, or beside the lonely saline seas of the Triassic Age"—H. G. Wells, *The Time Machine*, epilogue. This book, perhaps the best yarn ever written, contains such early and excellent accounts of the theory of the manifold that it has been quoted and re-quoted by scientific writers.

and higher time dimension again, which cries to be vitalized by a new level of passage, and so on forever.

We hardly needed to point out the unhappy regress to which the idea of time's motion commits us, for any candid philosopher, as soon as he looks hard at the idea, must *see* that it is preposterous. "Taking place" is not a formality to which an event incidentally submits—it is the event's very being. World history consists of actual concrete happenings in a temporal sequence; it is not necessary or possible that happening should happen to them all over again. The system of the manifold is thus "complete" in something like the technical logical sense, and any attempted addition to it is bound to be either contradictory or supererogatory.

Bergson, Broad, and some of the followers of Whitehead²¹ have tried to soften the paradoxes of passage by supposing that the present does not move across the total time level, but that it is the very fountain where the river of time gushes out of nothingness (or out of the power of God). The past, then, having swum into being and floated away, is eternally real, but the future has no existence at all. This may be a more appealing figure, but logically it involves the same anomalies of meta-happening and meta-time which we observed in the other version.

What, then, we must ask, were the motives which drove men to the staggering philosophy of passage? One of them, I believe, we can dispose of at once. It is the innocent vertigo which inevitably besets a creature whose thinking is strung out in time, as soon as he tries to think of the time dimension itself. He finds it easiest to conceive and understand purely geometrical structures. Motion is more difficult, and generally remains vague, while time *per se* is very difficult indeed, but being now identified as the principle which imports motion into space, it is put down as a kind of quintessential motion itself. The process is helped by the fact that the mere further-along-ness of successive segments, either of a spatial or of a temporal stretch, can quite logically be conceived as a degenerate sort of change, as when we speak of the flow of a line or say that the scenery changes along the Union Pacific.

A rather more serious excuse for the idea of passage is that it is supposed necessary and sufficient for adding to the temporal dimension that intrinsic *sense*, from earlier to later, in which it is supposed to differ radically from any dimension of space.²² A

²¹ Bergson's theory of the snowball of time may be thus understood: the past abides in the center while ever new presents accrete around it. For Broad, see *Scientific Thought*, p. 66, and on Whitehead see King, *loc. cit.*, esp. p. 663.

²² See, for example, Broad, *Scientific Thought*, p. 57.

meridian of longitude has only a direction, but a river has a "sense," and time is in this like the river. It is, as the saying goes, irreversible and irrevocable. It has a "directed tension."²³ The mere dimension of time, on the other hand, would seem to be symmetrical. The principle of absolute passage is bidden to rectify this symmetry with what Eddington called "time's arrow."

It might be replied that science does not supply an arrow for time because it has no need of it. But I think it plain that time does have a sense, from early to late. I only think that it can be taken care of on much less draconian principles than absolute passage. There is nothing in the dimensional view of time to preclude its being generated by a uniquely asymmetrical relation, and experience suggests powerfully that it is so generated. But the fact is that every real series has a "sense" anyhow. This is provided, if by nothing else, than by the sheer numerical identity and diversity of terms. In the line of individual things or events, *a, b, c, . . . z*, whether in space or in time, the "sense" from *a* to *z* is *ipso facto* other than the "sense" from *z* to *a*. Only because there is a difference between the ordered couple *a; z* and the couple *a; z* can we define the difference between a symmetrical and an asymmetrical relation. Only because there are already two distinguishable "ways" on a street, determined by its individual ends, can we decide to permit traffic to move one way and prohibit it the other. But a sufficient difference of sense, finally, would appear to be constituted, if nothing else offered, by the inevitably asymmetrical distribution of properties along the temporal line (or any other). The time-extended organization of living and conscious beings, in particular, has a special and asymmetrical "run," fore and aft. Eddington suggested that the arrow could be provided for the cosmos by the principle of entropy.²⁴ As for the irrevocability of past time, it seems to be no more than the trivial fact that the particular events of 1902, let us say, can not also be the events of 1952. Very similar events might be so, however, and if very few of them are, this is the fault of the concrete nature of things and not of any grudge on the part of time.²⁵

The final motive for the attempt to consummate the fourth dimension of the manifold with the special perfection of passage

²³ Tillich, *op. cit.*, p. 245.

²⁴ *The Nature of the Physical World*, Chap. 3. See Russell too. *An Inquiry Into Meaning and Truth*, New York, 1942, p. 122.

²⁵ Dennes argues thus, *loc. cit.* The root of the tragedy is that our wills and feelings are pointed forward in time. We *want* a plethoric and repetitive future, while we seldom bemoan the deficiencies of the past or the southeast.

is the vaguest but the most substantial and incorrigible. It is simply that we *find* passage, that we are immediately and poignantly involved in the jerk and whoosh of process, the felt flow of one moment into the next. Here is the focus of being. Here is the shore whence the youngster watches the golden mornings swing toward him like serried bright breakers from the ocean of the future. Here is the flood on which the oldster wakes in the night to shudder at its swollen black torrent cascading him into the abyss.

It would be futile to try to deny these experiences, but their correct description is another matter. If they are in fact consistent with our theory, they are no evidence against it; and if they are entailed by it, they are evidence in its favor. Since the theory was originally constructed to take account of them, it would be odd if they were inconsistent with it or even irrelevant to it. I believe that in fact they are neither, and that the theory of the manifold provides the true and literal description of what the enthusiastic metaphors of passage have deceptively garbled.

The principal reason why we are troubled to accommodate our experience of time to the intellectual theory of time goes very deep in the philosophy of philosophy. It is that we must here scrutinize the undoctored fact of perception, on the one hand, and must imagine our way into a conceptual scheme, and envisage the true intrinsic being of its objects, on the other hand, and then pronounce on the numerical identity of the first with the second. This is a very rare requirement. Even such apt ideas as those of space and of physical objects, as soon as we contemplate them realistically, begin to embarrass us, so that we slip into the assumption that the real objects of the conceptions, if they exist at all, exist on a different plane or in a different realm from the sensuous spread and lumpiness of experience. The ideas of time and of the mind, however, do not permit of such evasion. Those beings are given in their own right and person, filling the foreground. Here for once we must fit the fact directly into the intellectual form, without benefit of precedent or accustomed criteria. First off, then, comparing the calm conceptual scheme with the turbid event itself, we may be repelled by the former, not because it is not true to the latter, but because it *is* not the latter. When we see that this kind of diversity is inevitable to every concept and its object, and hence is irrelevant to the validity of any, we demur because the conceptual scheme is indifferently flat and third-personal, like a map, while the experienced reality is centripetal and perspectival, piled up and palpitating where we are, gray and retiring elsewhere. But this, of course, affecting the spread of time no more than that

of space, is only because every occasion on which we compare the world map with experience has itself a single specific location, confronting part of the world, remote from the rest. The perspectivity of the view is exactly predictable from the map. The deception with respect to time is worse than with respect to space because our memories and desires run time-wise and not space-wise. The jerk and whoosh of this moment, which are simply the real occurrence of one particular batch of events, are no different from the whoosh and being of any other patch of events up and down the eternal time-stretch. Remembering some of the latter, however, and anticipating more, and bearing in mind that while they happen they are all called "the present," we mistakenly hypostatize *the Present* as a single surge of bigness which rolls along the time-axis. There is in fact no more a single rolling Now than there is a single rolling Here along a spatial line—a standing line of soldiers, for example, though each of them has his vivid presentment of his own Here.

Let us hug to us as closely as we like that there is real succession, that rivers flow and winds blow, that things burn and burst, that men strive and guess and die. All this is the concrete stuff of the manifold, the reality of serial happening, one event after another, in exactly the time spread which we have been at pains to diagram. What does the theory allege except what we find, and what do we find that is not accepted and asserted by the theory? Suppose a pure intelligence, bred outside of time, instructed in the nature of the manifold and the design of the human space-time worm, with its mnemonic organization and the strands of world history which flank it, and suppose him incarnated among us: what could he have expected the temporal experience to be like except just about what he actually discovers it to be? How, in brief, could processes which endure and succeed each other along the time line appear as anything other than enduring and successive processes?

The theory of the manifold leaves abundant room for the sensitive observer to record any describable difference he may find, in intrinsic quality, relational texture, or absolute direction, between the temporal dimension and the spatial ones. He is welcome to mark it so on the map. The very singleness of the time dimension, over against the amalgamated three dimensions of space, may be an idiosyncrasy with momentous effects; its *fourthness*, so to speak, so oddly and immensely multiplying the degrees of freedom embodied in the familiar spatial complex, was bound to seem momentous too. The theory of the manifold has generally conceded or emphasized that time is unique in these and other respects,

and I have been assuming that it was right to do so. In the working out of this essay, however, I have come a little uneasily to the surmise that the idea of an absolute or intrinsic difference of texture of orientation is superfluous. For, regardless of whether there is such an underlying absolute disparity, it is plain that things, persons, and events, as a matter of natural fact, are strung along with respect to the time axis in patterns notably different from those in which they are deployed in space. The very concept of "things" or "individual substances" derives from a peculiar kind of coherence and elongation of clumps of events in the time direction. Living bodies in particular have a special organized trend timewise, a *conatus sese conservandi*, which nothing has in spatial section. Characteristic themes of causation run in the same direction, and paralleling all these, and accounting for their importance and obviousness to us, is the pattern of mental events, the stream of consciousness, with its mnemonic cumulation and that sad anxiety to *keep going* futureward which contrasts strangely with our comparative indifference to our spatial girth. An easy interpretation would be that the world content is uniquely organized in the time direction because the time direction itself is aboriginally unique. Modern philosophical wisdom, however, consists mostly of trying the cart before the horse, and I find myself more than half convinced by the oddly repellent hypothesis that the peculiarity of the time dimension is not thus primitive but is wholly a resultant of those differences in the mere *de facto* run and order of the world's filling. It is then conceivable, though doubtless physically impossible, that one four-dimensional area of the manifold be slewed around at right angles to the rest, so that the time order of that area, as composed by its interior lines of strain and structure, runs parallel with a spatial order in its environment. It is conceivable, indeed, that a single whole human life should lie thwartwise of the manifold, with its belly plump in time, its birth at the east and its death in the west, and its conscious stream perhaps running alongside somebody's garden path.²⁶ It is part of the same proposal, I think, that the "sense" of time be similarly composed. It is conceivable too then that a human life be twisted, not 90° but 180°, from the normal temporal grain of the world. F. Scott Fitzgerald tells the story of Benjamin Button who was born in the last stages of senility and got younger all his life

²⁶ I should expect the impact of the environment on such a being to be so wildly queer and out of step with the way he is put together, that his mental life must be a dragged-out monstrous delirium. Professor George Burch has suggested to me that it might be the mystic's timeless illumination. Whether these diagnoses are different I shall not attempt to say.

till he died a dwindling embryo.²⁷ Fitzgerald imagined the reversal to be so imperfect that Benjamin's stream of consciousness ran, not backward with his body's gross development, but in the common clockwise manner. We might better conceive a reversal of every cell twitch and electron whirl, and hence suppose that he experienced his own life stages in the same order as we do ours, but that he observed everyone around him moving backward from the grave to the cradle. I may be overbold to unveil such speculations, since to some they will seem a warning of the dangers of any dimensional view. The more reasonable reflection, however, is that if even this extravagant version, a completely isotropic theory of space-time, can be squared pretty well with the experience and idea of passage, there can be no serious doubt of the adequacy of the more moderate theory which neither asserts nor denies that the manifold is isotropic.

The same fact of the grain and configuration of events which, if it does not constitute, certainly accompanies and underlines the "senses" of space and time, has other virtues which help to naturalize experience in the manifold. I think that it accounts for the apparent *rate* of happening, for example; for the span of the specious present; and for the way in which the future is comparatively malleable to our present efforts and correspondingly dark to our present knowledge.

As the dimensional theory accommodates what is true in the notion of passage, that is, the occurrence of events, in contrast with a mythical rearing and charging of time itself, so it accounts for what is true in the notions of "flux," "becoming," "emergence," "creative advance," and the rest. Having learned the trick of mutual translation between theory and experience, we see where the utter misrepresentation lies in the accusation that the dimensional theory denies that time is "real," or that it substitutes a safe and static world, a block universe, a petrified *fait accompli*, a *totum simul*, for the actuality of risk and change. Taking time with the truest seriousness, on the contrary, it calmly diagnoses "novelty" or "becoming," for example, as the occurrence of an entity, or kind of entity, at one time in the world continuum which does not occur at any previous time. No other sort of novelty than this, I earnestly submit, is discoverable or conceivable—or desirable. In practice, the modern sciences of the manifold have depicted it as a veritable caldron of force and action. Although the theory entails that it is true at every time that events

²⁷ "The Curious Case of Benjamin Button," reprinted in *Pause to Wonder*, ed. Fischer and Humphries, New York, 1944, pp. 16-41.

occur at other times, it emphatically does not entail that all events happen at the same time or at every time, or at no time. It does not assert, therefore, that future things "already" exist or exist "forever." Emphatically also it does not, as is frequently charged, "make time a dimension of space,"²⁸ any more than it makes space a dimension of time.

The theory of the manifold, which is thus neutral with respect to the amount of change and permanence in the world, is surprisingly neutral also toward many other topics often broached as though they could be crucial between it and the extra idea of passage. It is neutral, so far, toward whether space and time are absolute and substantival in the Democritean and Newtonian way, or relative and adjectival in Spencer's and Whitehead's way, or further relativistic in Einstein's way. The theory of space does not, as Bergson pretended, have any preference for discontinuity over continuity, and the philosophy of the manifold is quite prepared to accept any verdict on whether space or time or both are continuous or discrete, as it is also on whether they are finite or infinite. Instead of "denying history," it preserves it, and is equally hospitable to all philosophies of history except such as themselves deny history by disputing the objectivity and irrevocability of historical truth. It does not care whether events eternally recur, or run along forever on the dead level as Aristotle thought, or enact the ringing brief drama of the Christian episode, or strive into the Faustian boundless. It is similarly neutral toward theories of causation and of knowledge. The world manifold of occurrences, each eternally determinate at its own place and date, may and may not be so determined in its texture that what occurs at one juncture has its sufficient reason at others. If it does evince such causal connections, these may be either efficient (as apparently they are) or final (as apparently they are not). The core of the causal nexus itself may be, so far as the manifold is concerned, either a real connection of Spinoza's sort, or Whitehead's, or the scholastics', or the mere regular succession admitted by Hume and Russell. It was as much a mistake for Spinoza to infer, if he did, that the eternal manifold and strict causation entail one another, as it is for Whitehead, the scholastics, and Professors Ushenko and Weiss to infer the opposite (as they seem to), that

²⁸ This is asserted, perhaps not with literal intent, by Charles Hartshorne, *Man's Vision of God*, p. 140, and Paul Tillich, *op. cit.*, pp. 132, 248. It is close kin to Bergson's allegation that the principle of the manifold "spatializes" time.

“real time” and “real causation” entail one another.²⁹ The theory is similarly noncommittal toward metaphysical accounts of individual substances, which it can allow to be compounds of form and matter or mere sheaves of properties.

The theory of the manifold makes a man at home in the world to the extent that it guarantees that intelligence is not affronted at its first step into reality. Beyond that, the cosmos is as it is. If there is moral responsibility, if the will is free, if there is reasonableness in regret and hope in decision, these must be ascertained by more particular observations and hypotheses than the doctrine of the manifold. It makes no difference to our theory whether we are locked in an ice-pack of fate, or whirled in a tornado of chance, or are firm-footed makers of destiny. It will accept benignly either the Christian Creator, or the organic and perfect Absolute, or Hume’s sandpile of sensation, or the fluid *melée* of contextualism, or the structured world process of materialism.

The service which the theory performs with respect to all these problems is other than dictating solutions of them. It is the provision of a lucent frame or arena where they and their solutions can be laid out and clearheadedly appraised in view of their special classes of evidence. Once under this kind of observation, for example, the theories of change which describe becoming as a marriage of being and not-being, or an interpenetration of the present with the future and the past, become repulsive, not because they conflict especially with the philosophy of the manifold, but because they plainly contradict themselves. When we see that the problem how Achilles can overtake the tortoise is essentially the same as the problem how two lines can intersect one another obliquely, we are likely to be content with the simple mathematical intelligibility of both. When we see that the “change” of a leaf’s color from day to day is of the same denomination as its “change” from inch to inch of its surface, we are less likely to hope that mysterious formulas about the actualization of the potential and the perdurance of a substratum are of any use in accounting for either of them.

If there is some appearance of didactic self-righteousness in my effort here to save the pure theory of the manifold from being either displaced or amended by what I think is the disastrous myth of passage, this is because I believe that the theory of the manifold is the very paradigm of philosophic understanding. This is so with respect to its content, since it grasps with a strong but

²⁹ See, for example, Whitehead, *Process and Reality*, New York, p. 363; Paul Weiss, *Nature and Man*, New York, 1947.

delicate logic the most crucial and richest facts. It is so also with respect to its method, which is that of clarifying the obscure and assimilating the apparently diverse. Most of the effect of the prophets of passage, on the other hand, is to melt back into the primitive magma of confusion and plurality the best and sharpest instruments which the mind has forged. Some of those who do this have a deliberate preference for the melting pot of mystery as an end in itself. The others hope eventually to cast from it, no doubt, a finer metal and to forge a sharper point. I suggest to them, however, that if a tithe of the genius and industry which they spend on that ill-omened enterprise were spent on the refinement and imaginative use of the instrument we have, whatever difficulties still attend it would soon be dissipated.

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POSITIVISM AND POTENTIALITY

AN examination of recent publications by positivists indicates that they are not completely satisfied with their present criterion of meaning.¹ In the light of the possibility that these expressions of dissatisfaction are the labor pangs preceding a new formulation of the positivistic meaning criterion, it may be fruitful to examine the changes that the criterion has gone through. I would like to suggest that such an examination reveals a basic problem which positivists have been implicitly striving to solve, namely, the problem of the meaning of potentiality and the consequent difficulty of allowing propositions involving potentiality to be meaningful.

In its earliest formulations—in the writings of Comte and Mach and Mill—positivism was based upon an epistemological position that may be traced back at least as far as the nominalism of William of Ockham and which had a later exposition in the works of Hume. According to nominalism we can have empirical knowledge only of the realm of sense-experience, and everything found in that realm is an actualized particular. Therefore, if we use the term “empirical knowledge” to apply only to those ideas which have a referent in sense-experience, we can have knowledge only

¹ E.g., the articles by R. Carnap and C. G. Hempel (as well as Bertrand Russell's more complete disavowal of positivism) in the *Revue Internationale de Philosophie*, Vol. IV (1950); H. Feigl's “Existential Hypotheses,” in the *Philosophy of Science*, Vol. XVII (1950) pp. 35–62; and A. J. Ayer's preface to the second edition of his *Language, Truth and Logic*.