Chapter 23
Time as Related to Causality and to Space

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Abstract In this chapter, Mary Whiton Calkins examines available conceptions of time and develops her own reconceptualization of it.

23.1 The Phenomenal Category of Necessary Connexion

Two fundamental errors, one positive and one negative, still contribute to a radical misunderstanding of the nature of time. Metaphysicians insist, as they have insisted for centuries, on treating Time and Space as analogous, and on attributing to the one the characteristics of the other; and, with the same persistence, they overlook the fundamental and far-reaching likeness between Time and Causality.

This paper aims to suggest the proper relations of time to causality and to space, and their common reference to a more ultimate category. Everybody will agree that all three may be regarded as varying sorts of unification of different kinds of multiplicity; causality as a connexion of events, time as a series of moments, and space as a relation of points or positions. This unity is, however, phenomenal, not ultimate; a connexion of facts,[1] that is of relatively separate, artificially isolated portions of reality—qualities, things, events or moments—'accepted' without investigation. This relative separateness and independence, which is an essential characteristic of the phenomenon, makes it a convenient object of scientific observation and classification, but debars it from the claim to ultimate reality, on any monistic hypothesis of an absolute unity underlying all multiplicity. To the idealist, for instance, to whom the universe is fundamentally the vital unity of individual selves within an absolute

[1] Cf. Bradley's definition of facts, *Appearance and Reality*, p. 317. "Any part of a temporal series... can be called an event or fact, for it is taken as a piece....".

Mary Whiton Calkins: First published in 1899 in *Mind, 8*(30), 216–232.

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J. Katzav et al. (eds.), *Knowledge, Mind and Reality: An Introduction by Early Twentieth-Century American Women Philosophers*, Women in the History of Philosophy and Sciences 18, https://doi.org/10.1007/978-3-031-24437-7_23

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self, the temporal, spatial or causal relation of phenomena is through and through mechanical, superficial rather than essential; a connexion, relatively extrinsic, of isolated bits of reality regarded as relatively independent. Yet however he denies its ultimateness, however strenuously he claims the existence of a deeper unity, monist as well as pluralist acknowledges the subordinate categories of phenomenal reality, that is the unifications of the superficial facts of experience.

Of these forms of what is at least phenomenal unity, two may be clearly distinguished: identity, that is the unity of the 'thing' or 'quality' with itself, in spite of the multiplicity of its temporal moments; and necessary connexion or the unity of the many with each other, that is, the relation, direct or indirect, of every bit of reality with every other, just by virtue of their both forming part of the same world. Such a reduction of the principles of phenomenal unity is suggested to the careful student by an elimination of categories from Kant's elaborate table: for the categories of Quality turn out to be attributes of sense elements, and not in any true sense functions of unity; those of Quantity prove their practical identity with time and space; and the categories of Modality are admitted by Kant himself to stand on quite another footing from the others—being virtually, indeed, mere varying expressions of his insistence upon the greater reality of the sensuous. The true functions of unity are evidently, then, to be sought under the head of 'Relation'; and there, we find, Kant recognises substance or permanence (a modification of identity), Causality or the necessary connexion of the Successive, and Reciprocal Determination, or the necessary connexions of the simultaneous. So Schopenhauer, whose metaphysical doctrine has failed, unhappily, of its rightful influence, because overshadowed by his ethical system,—Schopenhauer, though he overlooks permanence and identity, reduces the categories to one, that of necessary connexion, or, as he names it, *Grund,* of which time, space and causality are subordinate forms. "Alle unsere Vorstellungen," he says, "stehen unter einander in einer gesetzmässigen Verbindung, vermöge welcher nichts für sich Bestehendes und Unabhängiges, auch nichts Einzelnes und Abgerissenes Objekt für uns werden kann. Diese Verbindung ist es, welche der Satz vom Zureichenden Grunde ausdrückt."[2]

To discuss both sorts of phenomenal unity would lead us too far afield. We are more concerned with this last named, so clearly described by Schopenhauer; the necessary relation of all the diverse facts of the universe to each other, a principle of unity manifested in many ways, by the combination of qualities in a thing, by the coalescing of feelings in a mood, by the grouping of mathematical quantities in a series, or by the rhythm which binds together notes in a scale. The thesis of this paper is the assertion that Time and Causality are subordinate forms of this principle of the Necessary Connexion of phenomena, and that the third and co-ordinate form of the category is Reciprocal Determination, not, as is often stated, Space.

[2] *Vierfache Wurzel des Satzes vom Zureichenden Grunde*, § 16. Trans.: "All our representations," he says "are in a relation which is governed by laws, according to which nothing that exists solely for itself or independently, nor something isolated or disrupted, can become an object for us. It is this relation which is expressed by the principle of sufficient reason (Grund)."

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23.2 Time

(a) *The Temporal Manifold*

The reduction of these categories to the one fundamental principle of necessary connexion is best justified by a more detailed consideration of each one of them, and an investigation of the nature of time becomes therefore our immediate problem. To the question, What is time? the traditional answer is from the outset unsatisfactory, for it enumerates two distinct attributes of time, duration and succession, without giving an inkling of their relation to each other. But at the first glance, these so-called time-relations reveal themselves as directly opposed; the first is a form of unity, the second a kind of multiplicity; and yet duration is in no sense the unity of the successive, but quite a different sort of unity; it is a form of identity which consists in the oneness of one phenomenon with itself rather than that of many phenomena with each other. Duration, or permanence, is identity, regarded in direct comparison with succession and, in fact, measured by succession.[3]

Now if we are to choose between succession and duration as expressions of the real nature of time, there cannot well be any doubt of the decision. Things endure, qualities persist, one experience outlasts several others, but the essence of time is its restlessness, and the nature of time is the multiplicity, the succession, of its moments. The temporal sequence of course implies an enduring permanence, and is known only by contrast with it, but the succession, not the duration, is truly temporal. Everyday reflexion has always, indeed, identified time with succession, and has sharply emphasised its opposition to duration or permanence; the "flight of time," the elusiveness of the moment, the stream of time, are all expressions of our ordinary consciousness. Nor is there wanting the sanction, sometimes perhaps unwitting, of the great masters in philosophy. "Die Succession," says Schopenhauer,[4] "ist das ganze Wesen der Zeit."[5] "Time in its first appearance," Hume declares,[6] "can never be severed from such a succession of changeable objects." "Time is nothing," is Berkeley's expression,[7] "abstracted from the succession of ideas." The theory is sometimes upheld, even by Kant, though his usual view is that succession is merely one of the modes of time,[8]

[3] *Cf*. Schopenhauer, *Welt als Wille und Vorstellung*, § 4, p. 11 (8te Auflage): "Das Zugleichsein vieler Zustände aber macht das Wesen der Wirklichkeit aus, denn durch dasselbe wird allererst die Dauer möglich, indem diese nur erkennbar ist an dem Wechsel der mit dem Dauernden zugleich Vorhandenen" (Trans.: "The simultaneous presence of different states is what constitutes reality because it is only through this that duration becomes possible, for duration is only known by being compared with a cooccurring change").

[4] Schopenhauer, *Welt als Wille*, *u.s.w.*, i., § 4, p. 9.

[5] Trans.: "Succession," says Schopenhauer, "is the whole essence of time."

[6] *Treatise*, book i., pt. ii., § 3, Green & Grose, ed. i., p. 343.

[7] *Principles of Human Knowledge,* § 98.

[8] "Die drei Modi der Zeit sind Beharrlichkeit, Folge und Zugleichsein" (Trans.: "The three modes of time are perseverance, effect and simultaneous existence"). *Kritik der reinen Vernunft*, editions A., p. 177; B., p. 219.

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while occasionally he makes the misleading statement that permanence is the substratum of time, or even identical with time, of which accordingly succession is denied.[9] Before the appearance, however, of the second edition of the *Kritik,* Kant had realised the inaccuracy of such statements, and a manuscript note in his own hand makes the comment: "Hier muss der Beweis so geführt werden dass er nur auf Substanzen als Phenomena aüsserer Sinne passe, folglich aus dem Raum".[10] The suggested correction does not, however, appear in the second edition text of the Analogy, which, on the other hand, even adds the unequivocal sentence, "Die Zeit … bleibt und wechselt nicht".[11] But in a new section, introduced in the second edition—the *Allgemeine Anmerkung zum System der Grundsätze*—Kant says definitely, "Der Raum allein bestimmt beharrlich, die Zeit aber, mithin alles was im inneren Sinn ist fliesst beständig".[12,13]

The tendency to foist permanence upon the restless nature of time is clearly the result of the misleading habit of making time analogous with space. We of modern times owe much of this misunderstanding to Newton's *Principia,* and one can hardly read the Scholia of Proposition VIII without realising that this "time absolute, true and mathematical" which "flows regularly (*aqualiter fluit*)" and which is nevertheless credited with duration, that is with permanence, is but the pale abstraction from absolute space which "ever remains like and immovable (*semper manet similare et immobile*)". In the same way, the sections on Time in the *Kritik* owe their obvious weakness to the failure inevitably attending every effort to treat spatial and temporal reality after the same fashion.

If now succession is admitted to constitute the nature of the temporal manifold, it must next be distinguished from other sorts of multiplicity by its characteristic irrevocableness. The moment never returns, the past is gone beyond recall, the present is always a new phenomenon. More closely studied the 'irrevocable event or moment' differs from the 'revivable' thing, in that its manifold lacks the identity which belongs to the latter.

[9] Op. cit. A., p. 183, B., p. 226. "Die Beharrlichkeit drückt überhaupt die Zeit aus. Denn der Wechsel trifft die Zeit selbst nicht, sondern nur die Erscheinungen in der Zeit" (Trans: "Persistence is what in general expresses time…Because change does not affect time, but only appearances in time)."

[10] Nachträge, lxxx. Trans.: "Here the proof must be conducted so that it applies only to substances as phenomena of the external senses, thus of space."

[11] Trans.: "Time…remains and does not change."

[12] Trans.: "Only space persistently determines duration, but time, and everything which is part of inner sense, flows continually."

[13] The truth is that there is hardly any part of Kant's teachings so full of verbal inconsistencies as his doctrine of time. The constant juxtaposition, in successive paragraphs and even sentences, of glaring contradictions like those which have been quoted, amply justifies the critical theory of the *Kritik*, as written bit by bit and carelessly put together. At least three positions are assumed: (1) the theory that time is fundamentally "the permanent," and thus the substratum of succession and co-existence; (2) the theory that permanence is one of the *modi*, attributes or dimensions of time; (3) the theory which contradicts the permanence of time, as in the words, "Das Zugleichsein [ist] nicht ein Modus der Zeit, in welcher keine Theile zugleich sondern alle nach einander sind" (Trans.: "Simultaneous presence is not a mode of time, in which no parts are simultaneous, but all follow each other"). *Cf*. *Reflexionen*, pp. 366, 368 and 373.

The 'moment' is precisely such a phenomenon as has no permanence and will not recur, while the 'position in space' has an identity and thus a permanence and unchangeableness, such that it may be observed again and again. It is for this reason that Kant, as has been shown, in his later discussion treats permanence as a spatial relation, while Schopenhauer repeatedly emphasises[14] the "starre, unveränderliche Beharren des Raums".[15] It will be necessary, later, to widen a little this distinction between irrevocable and revivable, so as to include within the latter class mathematical and musical, as well as spatial, series. At this point of our study we have to differentiate the abstract from the concrete succession, that is, moments from events. The distinction is psychologically an abstraction, since we are never conscious of empty time, but always of past, present and future events, but the abstraction is a justifiable one, and we do mean always, by 'the moment,' the relatively empty unit of a successive manifold, the event in which the object of our attention is not any part of the specific content—colour or sound or emotional tinge—but just the bare fact of its being one of an unrecurring series.

(b) *The Temporal Unity*

Up to this point the temporal manifold has been the topic of discussion. But time means more than bare multiplicity, and its moments are regarded not only as many but as unified or connected. This connexion is moreover considered to be 'universal,' that is it is predicated of every possible phenomenon, so that the separateness of the phenomenon is only relative, and just by virtue of being 'event' or 'thing' it is by hypothesis one of a connected multiplicity. And this universality which is attributed to phenomenal connexion follows from another characteristic, its necessity. By the necessity of connexion is meant that the synthesis of the manifold depends on somewhat more fundamental than itself, that is upon the fundamental unity of reality which makes it impossible that any unconnected manifold should exist. This is the sort of necessary connexion, a phenomenal synthesis, founded upon an ultimate unity, which Kant shows by his transcendental deduction of the categories; and the establishment and explanation of this unity form Kant's real answer to Hume. Only a pluralist, therefore, can deny the necessity of phenomenal connexion, and conversely no one who affirms the universality of such a relation can consistently defend the pluralist metaphysics.

The necessary temporal unity is, moreover, of a particular sort. Geometrical magnitudes, for instance, are also of necessity connected, but the relation of one angle to another differs in one marked respect from the relation of one moment to another. The temporal series is not only connected but irreversibly connected, that is, past, present and future must be experienced in the same fixed order. One may turn one's eyes from east to west or from west to east, one may ascend or descend the musical scale, and one may count from 100 to 1 or from 1 to 100, while one cannot live the future before the present. Past, present and future must

[14] *Welt als Wille*, *u.s.w.*, i., § 4, p. 11.

[15] Trans.: "rigid, unchanging persistence of space".

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in truth be defined in terms of the irreversibleness of the necessary connexion. The past is the 'irrevocable' member of a series, on which another member, the present, 'depends'—with which, that is to say, it is irreversibly connected. The present is therefore dependent on the past, and the future on the present, in a sense in which the past is not dependent on the present nor the present on the future; while, on the other hand, mathematical quantities or planets in the solar system, though in a very real sense dependent on each other, yet are mutually determined. Thus the fundamental distinctions of time are based upon two sorts of necessity: first, the dependence of synthesis in general upon Ultimate Unity, and second, the dependence of the moment upon the preceding moment (which as 'irrevocable' is regarded as peculiarly real).

This now is the essential truth contained in all assertions of the oneness of time; not a unity of one phenomenon with itself, as opposed to multiplicity—the unity of duration—but the unity of the manifold, the related oneness of phenomena necessarily bound together. Schopenhauer states the doctrine unambiguously in his explicit teaching that time is only the "simplest of the forms" of the Law of Sufficient Reason. Schelling means the same by his expression, "Die Zeit hebt das Auseinander auf".[16] Kant also grows gradually to this view of the essential likeness of temporal with causal unity. Only the traditional blunder of coordinating space and time, and of assuming that what is true of one is true of the other, seems to prevent his discovering that time belongs among the categories. The permanently valuable part of his theory of time is to be found, therefore, neither in the *Aesthetik,* where the discussion of time follows the outline of the space-doctrine, nor in those passages of the *Analytik* which apply to time, in a matter-of-fact and mechanical way, all the predicates of space, but rather in the Second Analogy and in portions of the First and Third Antinomies, where time is treated as a category by being virtually identified with causality. For by the words,[17] "it is a formal condition of sense perception (*Wahrnehmung*) that the earlier time necessarily determine the later," Kant indicates that necessary connexion, the essential of causality, is also the fundamental characteristic of time.

Time, therefore, or the irreversible connexion of the irrevocable, relatively abstract manifold, is clearly a form of the category of necessary connexion, and is closely related to causality; the lighting of the fuse is no more 'necessarily connected' with the explosion, than one moment with another. The only distinction is indeed this, that the temporal manifold is made up of moments, whereas the causal manifold is that of events, but the underlying unity is the same in both cases, that of the irreversible connexion of the irrevocable.

(c) *The Psychology of the Time-Consciousness.*

This doctrine of the nature of time, like every philosophical theory, must meet the test of correspondence with admitted facts of consciousness. Now the essential of one's consciousness of time—that which cannot be lacking, if there

[16] *Weltseele,* 3te Aufl., p. xxxv. Trans.: "Time suspends the division".

[17] Op. cit., A., p. 199; B., p. 244.

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is to be time-consciousness at all—is the awareness of more-than one, that is of multiplicity, but of a successive multiplicity distinct from the manifold of the compound or of the extended. When this realisation of multiplicity is absent, when one is absorbed in a topic of thought, or in a circumscribed portion of one's surroundings, then one is lost to the sense of time; but when one wakes up to the fact of change, when one compares this image or object with another, then the consciousness of time reappears. The temporality of the event thus includes its attribute of being one-of-many, and though every moment always is a filled moment, nevertheless one may abstract from its colour or sound or fragrance and attend merely to its temporalness.

Thus psychological introspection verifies the metaphysical doctrine of time as an unconcrete, successive manifold. The emptiness of the time-manifold suggests also an explanation of the length of uneventful periods of time; the fewer the interesting events, the greater our attention to the bare fact of multiplicity as such. Similarly, the observation that uninteresting and habitual contents of consciousness—notably breathings and muscular contractions—form the measure of time-intervals[18] is a case in which the material of consciousness, itself uninteresting, leaves the attention free to direct itself to the fact of succession. "Awareness of change" is thus, as Prof. James says, "the condition on which our perception of time's flow depends."[19]

But introspection reveals also that the time-consciousness is far more than the awareness of unordered multiplicity, and that rather, as Höffding states the truth in his admirable exposition,[20] "inner connexion" as well as "change, transition and alternation" is an element of the time-consciousness. Of this inner connexion, psychological theory has taken little account, and for this reason modern discussions of time are peculiarly futile and inconclusive. 'Past,' 'present' and 'future' are distinctions of the moments according to the irreversible nature of their necessary connexion, and must be misunderstood by those who fail to include the realisation of inner relation as a factor of the time-consciousness. When once, however, this truth is firmly held, then it is impossible to dispute about the primariness of either past or present as original time-datum,[21] for it has become evident that one cannot know the past at all, except as related to the present, nor the present unrelated to the past.

The true doctrine of the nature of the psychical present opposes also the theory that duration is an element of the time-consciousness—either "das elementare, nicht weiter reducirbare, Zeiterlebniss,"[22] or one among the elementary attributes of the

[18] This is sometimes incorrectly interpreted as the observation that breathings and movements form the material of the time-consciousness.

[19] *Principles of Psychology*, i., p. 620.

[20] *Outlines of Psychology*, p. 184.

[21] Cf James, op. cit., i., p. 605, where he seems to make the original time datum the 'past,' while Strong, *Psychol. Review*, iii., p. 150, identifies it with the 'present' in the words, "The past means that which once was present; and the future that which will be present".

[22] Meumann (paraphrasing Nicholls) *Wundt's Philos. Stud.*, viii., p. 503. Trans.: "The elementary, not further reducible, consciousness of temporality".

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time-consciousness.[23] For, as these statements suggest, duration is regarded as a temporal element only when it is virtually identified with 'the present'. But the present is a temporal moment, and is therefore to be defined as 'one of a connected succession' which obviously is not the meaning of 'duration'. The awareness of permanence or duration though unquestionably a factor of consciousness is therefore not temporal at all.

This refusal to treat duration as a factor of the time consciousness is not, of course, a denial that the elements of the consciousness of time, like all phenomena, psychical and physical, may be said to 'have duration'. Not only temporal position but a certain appreciable persistence are involved, by definition, in the phenomenon or fact, whether elemental or concrete. But the 'attribute duration' belongs to the phenomenon from the realistic standpoint of the observing scientist and is not a part of the psychic content at all. The consciousness of temporal position and the consciousness of duration may be added to sensation complexes and so may form parts of psychic contents, but neither is a necessary element.[24]

Psychology does therefore substantiate our philosophical doctrine by indicating change and inner connexion as elements of the facts of time-consciousness. But another problem remains for psychological theory; how shall the time-consciousness be classified, as sensational or as relational, as direct or as mediate? To answer the question, there is needed, of course, a definition of 'the immediate,' and here we are at once confronted by a variety of meanings. Often the word is used as precise synonym for 'the present' (as realistic attribute of the phenomenon), and from this point of view every fact of consciousness is immediate since, as experienced, it is present. A variation of this meaning makes 'immediateness' equivalent with 'feeling of presentness,' so that immediacy is exactly that which may distinguish the sense percept from the image. Dr. Strong, adopting this use of the word, and following in the wake of everyday realism, is obviously consistent in his refusal to call the consciousness of time 'immediate,' on the ground that it includes a consciousness of past as well as of present. But on this theory of immediacy, it already involves time, and is therefore useless in describing the time-consciousness. Immediateness if it meant no more than 'present' would be a useless distinction, but, as a matter of fact, the word is ordinarily used in a wider sense. 'The immediate' is the fact of consciousness without a history—not the syllogistic conclusion which has been reached by way of ordered steps, nor the complex emotion which has passed through earlier and simpler stages, but the simple experience, the instinctive emotion, the undistinguished feeling of familiarity, or the single sensation. In their exact meaning, therefore, 'immediate' and 'direct' belong to the vocabulary of genetic, as distinguished from purely introspective psychology, for they treat the mental state from

[23] Cf. Wundt, Külpe, Titchener, Ward: also Stern, *Zeitschr. f. Psych. u. Phys.*, xiii., p. 332.

[24] This consideration suggests a criticism upon the ordinary procedure of coordinating duration with quality, extent and intensity, as attribute of sensation. For duration, as has been shown, is an attribute only from a realistic and reflective point of view, whereas intensity and extent, as well as quality, are sensational in their nature.

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the standpoint of the reflective onlooker. On this basis, the consciousness of succession and of inner connexion are palpably 'direct,' just because they are unanalysable elements, for only a compound, whose parts may be traced back to an earlier stage or to a different combination, can be regarded from the genetic standpoint.

The immediacy of the time-consciousness is often denied, because it is said to involve what would be the presence in one moment of a succession of moments.[25] But the existence of a feeling of succession does not imply that a past feeling has revived and added itself to a present one; such a hypothesis is an illicit, associationist attempt to reduce 'feeling of succession' to 'succession of feeling,' and is contradicted by unprejudiced observation, which inevitably finds that the 'feeling of succession' and the 'feeling of inner connexion' are unique, unanalysable minima of consciousness. The reaction against this unjustifiable attack, from the side of metaphysics, upon the immediacy of the time-consciousness is probably responsible for the tendency to define this in terms of perception or of sensation. Wundt,[26] following Kant, speaks of *Zeitanschauung*[27] and Külpe[28] of *Zeitwahrnehmung*[29]; while references to 'time-sense' or 'time-sensation' may be found in the writings of Mach,[30] of Meumann,[31] of James[32] and of Stern[33] (though James speaks also of the 'perception of time,'[34] while Meumann has lately declared for *Zeitbewusstsein*,[35] and Stern recently proposes *Zeitauffassung*[36]). Too much emphasis must not of course be laid upon the expression 'time-sense,' whose traditional meaning is a very wide one, yet it is not out of place to remark that the complexity of the time-consciousness forbids identifying it with the sensation, which is a psychic element. The time-consciousness as we have seen, is clearly analysable into the two factors, feeling of succession and feeling of connexion, and cannot therefore itself be what Höffding calls it,[37] a psychological ultimate. The percept as well as the sensation, moreover, is distinguished by a certain 'substantive' character, as James puts it, from the more 'transitive' elements of consciousness, like the feelings of identity, of familiarity and of succession. Even Hume recognises this, though he does not see how it upsets all his philosophising, and expresses it

[25] *Cf.* Strong, *op, cit*., p. 155 *seq.*

[26] *Physiologische Psychologie*, 4th Aufl.

[27] Trans.: Time intuition.

[28] *Grundriss der Psychologie*, p. 416.

[29] Trans.: Time perception.

[30] Quoted by Stern, "Psychische Präsenzzeit," *Zeitschr. f. Psych. u. Phys*., xiii., p. 327.

[31] "Beitrage zur Psychologie des Zeitsinns," *Philosophische Studien*, vii. and ix.

[32] *Principles of Psychology*, i., p. 605 seq.

[33] Op. cit.

[34] Op. cit.

[35] *Philosophische Studien*, xii., p. 127. Trans.: time awareness.

[36] *Theorie der Veränderungsauffassung*, pp. 3 and 10. *Psychologie der Veränderungsauffassung*, p. 21. Trans.: time concept.

[37] Op. cit., i., p. 243.

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very clearly in the words[38]: "the idea of time arises altogether from the manner in which impressions appear to the mind, *without making one of the number*". The essential meaning of the teaching that the time-consciousness is immediate, or even sensational, is however retained in the conclusion that it is made up of unanalysable and immediate factors, feeling of change and feeling of connexion. These, as has been said, correspond exactly with the elements of time, metaphysically considered with its irrevocable manifoldness and with the universal connexion of its parts, the moments.

23.3 Causality

The definition of causality as necessary connexion of events, though it opposes at once the every-day belief that one *thing* or object may be the cause of another, is nevertheless in accord with all philosophic thinking since Hume's time at least. Not the match, but the lighting of the match, causes the fire; not the bell, but the motion of its tongue, causes the sound. Another common theory demands notice; the doctrine that causality is a category of merely physical events, not a relation of phenomena of consciousness, feelings and volitions, percepts and images. On this view causality is distinguished from temporal unity, not only by its concreteness, but by the externality of the phenomena which it unites; it is therefore an external, as opposed to time, an internal category. There is no lack of support for this doctrine. Kant's definite argument against Hume, by his distinction between objective and subjective causality, rests upon the assumption that causality is a relation of the external. Schopenhauer says distinctly[39] that causality is "der Regulator der Veränderungen der äusseren Erfahrung,"[40] and indeed he makes matter synonymous with causality: "Ihr Wesen besteht in der Kausalität".[41] Modern thinkers, finally, very generally hold that the only categories of the inner life are those of worth or value, and that causality is a physical principle.

Now it is undoubtedly true that causality is a more important category of the outer than of the inner life, for every natural science supplements observation of facts by investigation of their causal connexion, and only physical causality is capable of exact description and measurement. But these truths prove only that causality is a particularly important and fruitful category of the external world, and not an

[38] *Treatise*, bk. i., part ii., sec. 3, p. 343. Italics mine.

[39] *Vierfache Wurzel*, *u.s.w.*, § 20.

[40] Trans.: "The regulator of changes of outer experience."

[41] *Welt als Wille*, *u.s.w.*, i., p. 10 (Trans.: "Its essence comprises causality"); *cf.* i., p. 13, "Materie oder Kausalität, denn beide sind Eines". Trans.: "Matter or causality, since both are one." A slight modification of this doctrine is the definition of matter as "objektiv gewordene Kausalität," (Trans.: "objectified causality") and this again is expanded into the theory that matter is simultaneity, a combination of space and time, or "die Wahrnehmbarkeit von Zeit und Raum" (Trans.: "the perceptibility of time and space"). Throughout, Schopenhauer's insistence upon the externality of causation is clear.

especially emphasised category of the inner life; they do not in the least disprove that the causal is a possible way of regarding the psychical experience.[42] On the other hand, in so far as the psychical experience is viewed—as unquestionably it may artificially be viewed—as made up of a series of single states—in so far it must be subject not merely to categories of significance, but to phenomenal categories, including those of universal connexion. This view is strengthened by the ordinary doctrine that time is a category of the inner life, and it cannot be disproved by the assertion, even if substantiated, that we actually come to the conception of internal causality through the previous observation of physical causation. So long as mental facts *may* be regarded as necessarily connected, each with each, so long causality is a psychical as well as a physical category. Therefore a hypothetical solitary individual, without consciousness of other finite selves, and hence without consciousness of externality, might think of his consciousness as made up of isolated and independent units. These units would have gained their permanence, probably, through repetition; the necessary connexion would have been suggested by repeated experiences in the same order.

With physical causality, however, that is, with the application of this conception of necessary connexion to events regarded as common experience of all possible subjects, one enters the sphere of the universal and the describable, and there is introduced at once the possibility of verification through experiences which are readily repeated, imitated and communicated. Through such verification the empirical causal propositions arise, the assertions that such and such an event has such and such a cause. This is the sort of doctrine of causality which Hume's criticism really touches, and he is quite correct, of course, in his conclusion that necessity never can be predicated of any observed connexion, and that the persuasion of empirical necessity is an effect of habit. But the assertion of this or that cause has no relation to that fundamental universality of causal connexion expressed in the proposition: "Every event has a cause". For causality is fundamentally, as has been seen, not the connexion of this or that event with another, but the necessary, and therefore universal and irreversible connexion of every event with some other event, its cause. The temporal connexion, that is the necessary relation of one moment with another, has really, therefore, by virtue of its abstraction from the concrete a complete universality which is lacking to any concrete connexion. The irreversibleness of causal synthesis implies, further, another sort of necessity, an unequal relation between cause and effect. The member of a reversible series is equally dependent on every other member of the series, while any term of a succession is specifically dependent on what precedes. This relation of the phenomenal cause to its effect is really what is meant by the 'power' of such a cause.

Still another principle has to be distinguished from the axiom of causality, namely, the proposition: "The same cause always has the same effect". Evidently this principle

[42] *Cf*. Hume, who, though he usually treats causality as connexion of outer events with each other (or of psychic facts with the 'real objects' which he inconsistently assumes), nevertheless, says distinctly (*Treatise*, bk. i., pt. iii., § 2, end) that the ideas of cause and effect are "derived from the impressions of reflexion, as well as from those of sensation. Passions are connected with one another... no less than external bodies are connected together."

is of far-reaching use and application in empirical science, forming the basis of all reasoning about the unrecorded past and the untried future, but it is not at all a purely causal principle, since it involves a recognition of identity in the assumption that 'the same cause' will recur, and since identity really is, as has been suggested, a transcendence of the whole standpoint of fact-multiplicity, not a unity 'of the manifold,' but rather a 'unity in spite of multiplicity'.

23.4 Reciprocal Determination

To discuss in detail the unity, reciprocal determination, of the revivable manifold would have led far beyond the limits of a self-respecting philosophical essay. The terms of the relation, concrete things and qualities, and abstract mathematical elements, differ, as has been shown, from events and from moments, by the fact that each possesses a kind of unity which these others lack, identity, and therefore permanence and recurrence. From this follows the feature which distinguishes the connexion of the revivable manifold from that of the irrevocable; a reversibleness or reciprocal relation such that any one of the multiple may be taken as the starting-point.

The reciprocally determined manifold is often treated as if completely equivalent with the spatial; Kant states his third analogy of reciprocal determination, with express reference to substances as co-existing in space[43]; Schopenhauer writes,[44] "Der Raum ist durch und durch nichts anderes als die Möglichkeit der wechselseitigen Bestimmungen seiner Theile durch einander, welche Lage heist"[45]; and Spencer[46] distinguishes coexistence from succession, in that "whereas the terms of the first can be known in the reverse order with equal vividness, those of the second cannot". Yet it is at once evident that the spatial is, to say the least, not the only form of the permanent and reversible manifold; the notes in a scale and the terms of a numerical series are also reversible but not spatial, for even if one asserts the spatial character of sounds, it is surely not by virtue of their space distinctions that the notes are capable of reversal. One is thrown back upon the question: what is the spatial, since, at best, it is only one among the forms of the reversible? Once more, there can be no doubt of the ordinary answer: the spatial is the external, and just as time is a category of the inner, so is space a category of the outer life. But this doctrine accords ill with the common view that not all sense qualities, but only the visual and the tactual, are spatial. Why should not sounds and odours as well as colours and surfaces have form and location? Or, if one takes one's stand with the extreme nativists, like James and Ward, and affirm the spatial character of all sense-qualities, the questions still remain: What of the mathematical reversible? Is not that

[43] Op. cit., A., 211; B., 256.

[44] *Welt als Wille, u.s.w.*, i., p. 109.

[45] Trans.: "Space is nothing other than the possibility of the mutual determination of its parts through each other, which is called *position*."

[46] *Principles of Psychology*, third ed., part vi., c. 22, vol ii., p. 275.

still independent of me and so external to me? The true nature, like the invariable test, of externality, is its superiority to the individual, that is, its universality. The outer world is the world whose lights and sounds and fragrance all men share, while the inner world of my imagination belongs to me alone; the external truth is the object of common conviction, while the illusion is the product of the individual mind; in a word, the external world is the world of society as opposed to the world of the lonely self. This impossibility of limiting the 'external' or 'reciprocally determined' to 'the spatial,' fairly drives us at length to the conclusion which psychology has long held before us, that the spatial means something quite other than the external, and is itself nothing more than a concrete: a sense-quality or a complex of sense elements.

The arguments of the Kantians against the sensuousness of the spatial are not decisive. To urge that Space is recognised as one, in a sense in which 'redness' and 'softness' are not called 'one,' is to overlook the difference between Space, clearly a construct of experience, and the elementary extension or spatialness from which this Total Space is built up. The other characteristic marks of the spatial clearly result from its greater generality, that is from the greater variety of its combinations with other sense experiences, for whereas the visual, like the tactual, quality, is always in our experience combined with the extended, this may be combined with either of the two. Thus, also, it is easier to abstract the spatial quality from the complex of sense experiences, to shake it free from encumbrances, to make it the object of more constant attention. It follows naturally that space distinctions are more delicate and more complex. Finally, the certainty of the geometrical consciousness, on which is founded Kant's Transcendental Deduction of Space, is not to be explained by the ordinary assumption that space-consciousness, because different from sense, must have greater certainty, but on the ground that the spatial as a more constant object of attention is more universally apprehended.

It is interesting to observe that Kant, whose psychology is so often better than his metaphysics, possesses a truer insight into the nature of the spatial than he can force into the moulds of his philosophical preconceptions. With his distorted notion of the ultimate distinction between sense-quality and thought, he cannot include the spatial within the sense-manifold; yet he keenly realises its character of immediateness, and cannot therefore treat space as a category, a principle of thought. Therefore that anomaly, the 'Form of Sense,' the 'sensible' which has no sense-attributes, wins its permanent position in the Kantian hierarchy, because Kant could not blind himself to the sense character of space.

We are not here at all concerned with the specific controversy between nativist and empiricist. Whether the spatial is a combination of motor sense element with visual or tactual, or whether it is itself a distinct sense-quality, matters little, so one realises what the appeal to the ordinary consciousness of everybody surely shows, that extension is 'sensible,' no less than colour or resistance. The spatial is then no fundamental category, or uniting principle, but itself one variety of the manifold to-be-categorised. This conclusion incidentally explains many of the absurdities of the theories about time. The tendency to treat the two after the same fashion has, as we have seen, long been rife in philosophy, and the efforts to make time, the category, follow the lead of extension, the sense-quality, or of Space, the notion elaborately

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455 built up from the sense-element, must evidently result in hopeless confusion, and in
456 wrong theories of the two.

457 The summary which follows includes the chief distinctions which this paper
458 has tried to justify. Its first section has been added for the sake of completeness,
459 though it involves the allusion to certain metaphysical principles which have not
460 been discussed.

Unity and multiplicity	
A. I. Ultimate unity	II. Fundamental multiplicity
(Variously stated in different systems) (a) Idealistic	
The absolute self	Individual selves 'Ideas' of the absolute self
(b) Realistic	
1. Matter or Force, or 2. 'Unknown Reality'	
B. I. The Phenomenal Unity (a) Of the many (events or things) with each other; *Necessary Connexion* (b) Of each of the many (things) with itself: *Identity*	II. The Phenomenal Multiplicity (a) Events (and moments) (b) Things (and qualities)

461 The results of the closer study of the phenomenal category of necessary and
462 universal connexion may be grouped together after a similar fashion.

Phenomenal unity of necessary connexion	Terms of the Connexion
1. Irreversible	1. Irrevocable
(a) Causality (concrete) (b) Time (abstract)	(a) Events (b) Moments
2. Reversible, that is	2. Revivable
Reciprocal determination	
(a) Concrete (b) Abstract	(a) External objects (b) Mathematical quantities

463 Such a classification may at least suggest the possibility of a simple and accurate
464 classification of principles often confused and as often falsely distinguished.