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ARTICLE III.

IS SPACE A REALITY? OBSERVATIONS ON PROFESSOR BOWNE'S DOCTRINE OF SPACE, MOTION, AND CHANGE.

BY THE REV. PROFESSOR C. M. MEAD, PH.D., BERLIN, GERMANY.

SINCE in the *Bibliotheca Sacra* for 1886 I made some animadversions on Professor Bowne's doctrine of Time, President Strong has discussed (Jan., 1888) the general subject of Modern Idealism. While his article may seem to have covered the whole ground, and to have refuted this Idealism in all its assumptions and positions, it may yet be well to follow it up with a more limited discussion, which seems to be needed as a complement to my previous article, and which, while less comprehensive than Dr. Strong's able discussion, may yet serve to bring out more sharply the points of difference between the Idealist and the Realist. In presenting these criticisms, I desire again to express my almost unqualified admiration of the ability and brilliancy of Professor Bowne's discussions of the deepest and driest of metaphysical problems. But together with a vast deal of clear-headed and masterful presentation of important truths, he advocates a system which, I am firmly persuaded, cannot stand the test of thorough inspection.

With respect to space, as with respect to time, our author finds himself constrained to say that it cannot be regarded as an objective reality, but only a way or form in which the mind views things. He admits that this notion conflicts with that of spontaneous thought. But, he thinks, we are

driven to his conclusion by the self-contradictions into which we are drawn by the attempt to carry out the spontaneous thought. This he aims to show by urging the following difficulties:—

1. "The conception of space as an all-containing form is an inconsistent metaphor borrowed from our sense-experience. Forms must always be forms of something; and when there is no reality to produce and limit the form, the form exists only in imagination." Space, simply as form, is nothing. If something real, it "must come under the law of reality in general."¹ If we try to make space a *tertium quid* between something and nothing, it must be able in some way to assert itself as a determining factor in the system of things. For we cognize things as existent only as they in some way act. Being is activity. Space, if real, cannot be "powerless emptiness," but an "active something." If space is regarded as conditioning things and their activities, it must act on them, and therefore must be a thing itself. Moreover, "if space be real and extended, its several parts must be real, and space can have no proper unity" (p. 184). "But the relation of these parts is fixed and changeless." "Each smallest volume . . . is absolute as to its own existence, but determined in its relations to other volumes." If one replies that the determination is a logical one, the answer is that "logical determination exists only in thought." Consequently we must make space either a "pure nothing or a thing in interaction with itself and other things." But "both of these views are untenable, and the former is absurd." The latter is wholly opposed to the common conception of space, which is that "things and space coexist in mutual and absolute indifference" (p. 186). The upshot is that we cannot view space as nothing, nor regard it as an objective reality.

2. "If space be a reality apart from things, it is something

¹ *Metaphysics*, p. 181.

uncreated and eternal." No one can suppose that space was created as an infinite void. Hence commonly space has been regarded as an eternal necessity which God himself cannot escape. But "all principles and all manifestation alike must flow from the infinite, and the infinite must be one." "We cannot view space and being as mutually independent; for in that case being and space must be in interaction, if space is to affect our system. But this would destroy the independence of both, and would also make space an active thing, and not space" (p 187). It does not relieve the difficulty to say that "being is in space," for if the two are wholly independent of one another, such an assertion has no meaning. "Instead of saying, then, that being is in space, we must rather say that space is in being" (p. 188).

3. Finally, "if space be a real objective existence, then the infinite, or rather God, is in space, and possesses bulk and diameter." "But such a conception applied to the infinite cancels both its unity and its omnipresence. That which is omnipresent in space cannot be extended in space, for such extension would imply merely the presence of the being part for part, or volume for volume, in the occupied space" (p. 188). The conclusion is, therefore, that space cannot be viewed as a real existence.

These difficulties, it is now observed, have led to another mode of stating the doctrine of the objective reality of space, namely, that space is "a certain order of relations among realities" (p. 189). That is, space is conceded to be nothing apart from things; "but things, when they exist, exist in certain relations, and the sum, or system, of these relations constitutes space."

To this Professor Bowne objects: 1. That this mode of defining space fails to distinguish it clearly from the other. When we try to take the notion in, we virtually presuppose space as a condition of the existence of things. "When space is defined as the mutual externality of things, we have

to call up the general form of space to understand what is meant." But it is conceivable that different elements should be so related to one another as to coexist in the same point of space. "The mutual otherness of spirits, also, though commonly represented as spatial, is properly an otherness of personality, and space has no necessary part in the matter" (p. 190).

Moreover, 2. This view is to be rejected because it assumes the objective reality of relations, whereas all relations are necessarily subjective. "Objectively there is nothing but things and their unpicturable interactions. All that is more than this is contributed by the mind" (pp. 191, 192).

Consequently we seem to be shut up to the third view, "which makes space a form of intuition, and not a mode of existence." "But while shut up to this view by the failure of the others, we seem to be shut out from it by its own overwhelming absurdity" (p. 193). Hence it is necessary to clear away the misconceptions which have clustered about the doctrine. These misconceptions are especially the two following:—

1. The doctrine is commonly made to mean "that our space-intuition is something arbitrary, and without any determining factor in the world of reality." The mind is conceived "as having an arbitrary relation to reality, and hence one which might as well be changed as not" (p. 194). But this is a mistake. "The positions and relations of things in our subjective space are independent of our volition, and their spatial changes take place without any consent of ours" (p. 195). Just as the sensations of heat, sound, etc., are not copies of anything objective, and yet are the subjective symbol, or translation, of certain phases of the object, so "things and their unpicturable interactions are such that they produce in perceptive beings an intuition of space" (p. 195). But the intuition is not independent of the realities; and therefore "any change in the metaphysical interactions of

things is attended by a corresponding change in the apparent space-relations" (p. 196).

2. The other misconception is that this view makes space a delusion, and thus destroys all confidence in the mind. To this it is replied that appearance must not be confounded with delusion, and that realities may be no less realities because they exist only in the mind. "The world of sense-qualities is discovered to have no objective existence, but to be only affections of the subject. They do not thereby become unreal and delusive, for all that was ever true of them remains true of them still." So "when we call space a mode of appearance, we do not mean that it is a delusion, but the form in which being appears in intuition" (p. 198). "And so we come finally to the conclusion that reality cannot be pictured, but must be thought; it must be grasped in concepts and not in images. For the pure reason, therefore, reality exists without space-predicates. In our intuition it takes on the forms of space; in our sensibility it takes on the form of sense-qualities" (p. 199). "The conclusions reached are not forced upon us against reason, but by reason itself" (*ibid.*). This conclusion is not so foreign to our thought after all, since we commonly conceive of mind as unrelated to space. Nor need we assume that space as a form of intuition is only a form of *human* intuition. It may well be a form of intuition, both human and divine. "God is not only pure thought, but he is also absolute intuition and absolute sensibility" (p. 201).

It is concluded, therefore, that, as space as such cannot act on the mind, "our knowledge of space is a mental interpretation of the action of things upon the mind." "Hence there is not the slightest need of admitting an objective space to account for our space-experience" (p. 205). "It is possible that, under certain forms of experience, the mind would never come to the space-intuition." "There is no ground for affirming that the space-intuition is the only one

possible in the nature of being." "It is entirely possible, however, to hold, along with this admission, that the space-intuition cannot be changed in its essential laws and nature" (p. 209).

The foregoing is a condensed statement of our author's doctrine and his defence of it. I have endeavored to state it as fully and fairly as space would allow. Is the doctrine satisfactory? Is the defence conclusive? The doctrine is admitted to be decidedly opposed to the spontaneous impressions of the common mind, but is asserted to be made necessary by the self-contradictions which the common view necessarily falls into. We need, therefore, to inquire very carefully whether the vulgar notion is so entirely untenable as is represented, and, even if insoluble difficulties do seem to belong to it, whether the substitute is less free from difficulties. I remark, then—

1. The analogy of sense-perception does not lend that confirmation to Professor Bowne's doctrine which he tries to derive from it. He repeatedly appeals to the truth that our sensations are purely subjective, and are in no sense copies of any objective reality, as a reason for assuming that our notion of space may be none the less purely subjective. If there is no such thing as color, sound, etc., in the things outside of us, why may we not find out that the space-conception is in like manner merely our mode of thinking of things, and not at all a truthful representation of any outward reality? The argument all along relies on this analogy. Now what shall we say to this?

In the first place, it must be said that the fact of the subjectivity of our sensations is overstated. What is meant when it is affirmed that there is no such thing as sound, heat, etc., except in the sensation of percipient being? "It is amazingly clear," we are told "[to so-called common sense] that the sun shines, whether seen or not; and that sound rings just the same, whether heard or not. But physiology

has discredited these notions utterly" (p. 203). Now for one, in spite of physiology, I do not hesitate to express it as my opinion that the sun does shine, whether seen or not. What has physiology proved respecting light and sound? As to sound, it has been discovered that the sensation is caused by vibrations in the atmosphere striking the tympanum of the ear. If there is no ear, there can therefore be no *sensation* of sound. The *ringing* is wholly in the ear. Now physicists in their investigations have no doubt made known many things once not remotely suspected by the common mind. That a high tone is caused by a rapid vibration and a low one by slow vibrations, is doubtless an established fact. But what of it? Is there no sound unless these vibrations strike on a sensitive ear? That depends simply on the definition of the word "sound." If it is defined as being merely the impression made by atmospheric vibrations on the ear, then of course sound is purely subjective. But if it is defined as atmospheric vibration itself, then it is not purely subjective. So with regard to light and color. Is color a quality of objective things? No, says Professor Bowne emphatically. Science has shown that it is all in the eye. But how does it get into the eye? Does the eye, or the mind back of it, produce the sensation at option? Oh, no! the sensation is caused by certain peculiar undulations of the impalpable substance called ether. The sensation of sound is likewise caused by atmospheric vibrations. It is by means of this discovery alone that "physiology has discredited" the common sense notion. But the vital question here is this: *Are these vibrations and undulations themselves objective realities?* Or are they, too, nothing but subjective sensations? How do the scientists learn about the vibrations? Evidently by the use of their senses. Have they

been gained after all. According to the idealists and phenomenologists sense-impressions are no criteria of objective fact; they are simply subjective impressions. One is just as much and just as little as the other to be taken as an index of the nature of the thing-in-itself. Accordingly, if the more recent discoveries about undulations and vibrations are only a new stock of subjective sensations, we are no better off than before. Or perhaps we are worse off; for if the new impressions are in any way in conflict with the older ones, then there is a sort of civil war going on within us, and there is no arbiter to settle the quarrel. On the other hand, if the new discoveries are not merely a new accession of subjective sensations, then they have disclosed something respecting the objective world. If the old assumptions of common sense have been proved to be mistaken, this has been proved by the fact that something new is *known* concerning the world of things outside of us. The scientists certainly have always supposed themselves to have learned some facts respecting these sense-experiences. But according to phenomenalism it is doubtful whether their claim can be admitted. For the theory of modulation presupposes the fact of space and of motion in space. Professor Bowne, however, tells us that space and motion are not objective realities at all. But if this is so, then the new scientific theories which are appealed to as having discredited the old notions of things are themselves discredited. The investigators of nature, after having made careful observations and measurements of moving objects in space, if they really believe the metaphysician who tells them that there is no motion and is no space except in the imagination, will probably conclude that it is of no use to make any further investigations. But if they should trouble themselves to ask the metaphysician, how he found out that space and motion are realities only in the mind, what shall he say? He must say, "You scientists have shown by your discoveries that the common impression about the objectivity

of sound, color, etc., is entirely erroneous : and so I infer that the common impression about the objectivity of space and motion may be erroneous too." It would not require much metaphysical acumen on the part of the scientists to enable them to reply, "Oh, no! this will not do. If we have made the discoveries you speak of, it has been done on the assumption that space and motion are objective facts. If they are not such facts, then we cannot pretend to have made any discoveries at all; and therefore you can make no inferences from them." In short, a philosophical theory which allows us to know nothing about an external world except that it somehow causes in us certain sensations, must make each of those sensations an ultimate fact, and has no right to set up one against another. Every sensation, on this theory, is as valid as every other. If they conflict with one another, there is no help for it; and we have no right to make any one or more of them the standard by which the others are to be judged or rectified.

But, in the second place, even if we make all the concession that we honestly can make to the theory of the subjectivity of sensations, we must still demur against making the notion of space analogous to those of sound, fragrance, taste, etc. There is no *a priori necessity* of attributing any of these secondary qualities to matter. We get the sensations of redness, of smoothness, of sweetness, etc., from experience. They come to us, it is true, in spite of ourselves; we do not originate them at will. But we find ourselves under no *necessity* of thinking that the world of reality must have such and such sensible qualities. When, however, we come to the notion of space, there is an *a priori* necessity laid upon us, if we think of an objective world at all, to think of it as in space. We annihilate our conception of a perceptible world, whenever we annihilate space as a condition of it. If, now, we make no distinction between such empirical and such necessary notions; if the necessary generic conception

of space can be relegated to the category of subjective conceptions just as freely as the sensation of smell can be,—then what is left that cannot equally well be put into the same category? The notion of causation, for instance, is it purely subjective? Does it represent any objective fact? Have we a right to infer from our sensations that they are *caused* by anything outside of ourselves? But by what right can we make the inference? We have the notion of causation, it is true; but is it not a mere notion? How can we be sure that it is not an utterly misleading conception, and that we have no right to assume that our sensations are caused by anything outside of us, or even that they are caused at all? Why not say that they are simply ultimate facts of experience? By what right does the idealist impugn the validity of the conception of space, and yet maintain the validity of the conception of causality?

2. We must question the conclusiveness of Professor Bowne's polemic against the common notion of the objectivity of space. The burden of his contention, as with regard to time, is that space cannot consistently be conceived of as a thing, nor as a quality of things, nor as a relation of things; and therefore, since this exhausts the categories of possible conceptions as regards the outer world of reality, it is concluded that space cannot be an objective reality at all.

Now it must be freely admitted that the premise of this argument is correct. Space cannot, more than time, be conceived as a substance, or as an activity, which is found in interaction with other forces of the material world. Nor can we think of space as an attribute of things. We may and must call things extended; and extension may be pronounced an essential attribute of matter. But space is not simply

existence unless there is place to put them in. Nor, again, can space be defined as a relation or as a summation of the relations, of material things. Thus when Canon Birks¹ says that space "is the summation of all those relations of distance, forward and backward, sideways, up or down, in which bodies are known to be placed, or conceived to be placeable, one towards another," the obvious objection occurs, Why limit the definition to *those* relations? There are others, for example, such as those of color, fragrance, chemical difference, which are not included, and cannot be included, in this summation. Why not? What is the rule of selection? The only answer can be that these latter relations are not *spatial* relations; in other words, the notion of space is presupposed in this definition; we are assumed to know that the relation of distance has to do with space, before we include it among those the summation of which constitutes space.

So far we quite agree with Professor Bowne. But his second reason for rejecting this definition of space as a summation of relations cannot be accepted. He says that it assumes the objective reality of relations, whereas all relations are necessarily subjective. This dogmatic assertion, which he repeatedly makes, but nowhere proves, needs to be met only with a dogmatic denial. It is indeed not quite easy to understand it. He seems to hold, in some sense, to the reality of a world distinct from percipient beings. He describes this world as made up of things, or beings, whose characteristic is that they *act*, and act on one another. In treating of the subject of change he says (p. 94) that "the members of the series A, A¹, A², etc., are *related* as cause and effect." This sounds like an affirmation of a real objective relation. Still more unequivocal is the assertion (p. 104) that "the thing is able to exist and maintain relations apart from our thinking." In view of this admission we

¹ Scripture Doctrine of Creation, p. 133.

need not be terrified by the assurance that all relations are purely subjective.

But to return to the main question. What shall we say, now, to the argument that space, because not a thing, nor a quality or a relation of things, is nothing but a mental form of conception? Can we clear ourselves otherwise from the charge of holding to something that is self-contradictory or inconceivable? Certainly. To the question what space is, if it is none of these things, we need only to answer: Space is space. As Professor Bowne says of motion (p. 242). "It is indefinable, except in terms of itself." It is an ultimate idea. It is forced upon us when we think at all. We cannot help speaking of it or implying it constantly. But we cannot define it except by synonyms, or by expressions which presuppose the notion itself. Well, what then? Where is the self-contradiction? Where is the absurdity, or the inconceivability? The notion is unquestionably a fact. Confessedly men generally conceive of space as an objective fact. Why not admit that this conception is correct? No contradiction comes in until the objector appears, with his effort to force us into a definition which, because no definition is possible, is liable to bear the appearance of inconsistency. As to the mystery of space, we may freely admit it; but Professor Bowne is not at all reluctant to admit the same respecting things that he firmly holds. For example, he says concerning action (p. 108) that it "must be recognized, but cannot be understood. How a thing can act, how we ourselves can act, how a given state of anything can be the ground of change in other things, or even in itself—all these are insoluble questions." Going on to discuss the topic of interaction, he finds so many difficulties, that he finally concludes that "all finite being must be viewed as simply a mode of the basal one, and without any proper existence" (p. 129). But still he adds: "We do not fancy that this view settles all difficulties. On the contrary, it

leaves the mystery of being and action as dark and impenetrable as ever" (p. 130). He insists, however, that any other view involves contradiction as well as mystery, and that therefore we are logically bound to adopt that view which is free from contradiction, even though it still involves what is inexplicable. It would, however, be easy to show that the contradictions which he exposes in the attempts to explain action and interaction come from just those attempts, and would not exist, if the mystery of action were admitted at once, and the explanations not attempted.

We affirm that there is no contradiction involved in conceiving of space as actual and as a condition of the existence of a material world. The notion of space, though it cannot be analyzed, is a fact, and an essential part of the fact is that space is conceived as objective. Our author, however, says of space, "Our theory excludes it only from things as thought, and not from things as they appear." But it is the most marked characteristic of the conception of space, that space is and must be *thought* as objectively real. As with regard to the notion of time, the most elaborate metaphysical attempts to banish the notion still leave it as something that cannot but be *thought*. The reality of space is implied in the very language by which the reality is explained away.

But we are told that the common notion "leads to a hopeless dualism of first principles" (p. 186). Space is conceived to be co-eternal with God, existing independently of God. This notion, therefore, it is said, is in conflict with the truth "that all principles and all manifestation alike must flow from the infinite, and that the infinite must be one" (p. 187). English and American writers, it is remarked, "have paid very little attention to the general problem of knowledge; and hence . . . they have had little hesitation in allowing any number of independent principles" (*ibid.*). "The idealist rightly urges that objective existences must not be multiplied beyond necessity" (p. 205). Very true; only who is to decide

where the necessity ends? Either we must say that there is only one principle in the universe, that God is All and All is God, or else we must postulate something else. The term "principle" is, it is true, somewhat vague; but Professor Bowne uses it freely, and cannot object to others' doing the same. But does he mean that there is only one principle, namely, God? In a certain sense he does. He holds "that there is one basal being in action as the source of the system and of all its laws, principles, and realities" (p. 144). To this no objection need be made; but this very assertion involves the admission of "principles"—how many? That the "basal reality" is "the determining principle of all secondary existence" (p. 145), we may also admit. But if there are (as our author seems to assume) realities and principles distinguishable from God, the "basal being," then the question, how many of these there are, can be determined only by a fair sounding of nature and of mind. If a man finds two or three of these principles, and then says, "This is enough, at this point. I will hold up the law of parsimony *in terrorem* over any who believe in more," it is competent for the others to reply that, while they respect the law, they must be allowed to make their own application of it. Professor Bowne evidently believes in a principle of right and in a principle of causation. He may say that these are not independent principles co-ordinate with God. And so we may say also: yet in some genuine sense morality and causality are real and universal principles, distinguishable from God. If now we say that time and space are likewise universal principles, not independent of God in a dualistic way, yet independent of our minds,—real objective realities just as truly as the principles of right and causality are independent of our minds and are objective realities,—then we

We are aware that it may here be replied that space and time are admitted to be mental principles, and that causality is also a mental principle. "The mind deals with its objects under the forms of cause and effect, substance and quality, identity, continuity, and space" (p. 507). "The world, considered in itself, is an order of divine energizing, which, when viewed under the forms of space and time, of causality and substance, appears as a world of things" (p. 460). All these principles, then, seem to be conceived as purely mental principles—the "forms" under which the mind cognizes the not-mind. But are they all really put on a par? Not at all. That we have any notion of a not-self, our author accounts for by assuming "an excitation of the soul by something not itself" (p. 412). The very phrase "divine energizing," above quoted, implies that God, in producing in us the perception of a real or apparent world, acts *causatively*. Furthermore, subjective idealism, the theory that "we are not in a common world, but only seem to be," is rejected on the ground that such a theory, though incapable of disproof, implies that God is deceiving us. "Our only ground of assurance is the ethical conviction that such a tissue of deceit and magic would be disgraceful and outrageous" (pp. 471, 472). He concludes, therefore, that the presentations which we have concerning the world-process "are real revelations, and not individual phantoms" (p. 472). But our point now is that in all this it is implied that our notion of the world is *caused* in us by something outside of us, whether directly by the world or indirectly by divine power. Causation, then, is not merely a subjective "form," according to our author, but an objective fact. Space and time, on the contrary, he affirms to be purely subjective.

3. But we go further and allege that our author's doctrine

(p. 205). Let us see now whether his doctrine of change does not lie under the same condemnation. "Change," he says, "is the most prominent fact of experience; and, since we view being as the source of all outgo and manifestation, we must provide for change in being" (p. 77). On this ground of experience he rejects the Eleatic doctrine of the essential changelessness of all things, and sets himself to the solution of the problem, how change can be postulated without contradiction. How can a thing be changed and yet be the same thing? The question is answered by saying that being is in fact a becoming, that the world is a process, a flow, and that change is therefore the normal state of things. The general fact is stated in the formula that A becomes A^1 ; A^1 becomes A^2 , etc. The two are identical only in the sense that the one is developed out of the other (p. 95). They are "different things, having no other connection than a mutual interconvertibility according to a certain law" (p. 94).

Now the question we raise here is, whether change is something or nothing, or hovers between the two. Is it a thing, an agent, a cause? Professor Bowne holds that "being is cause" (p. 45), that "causation includes all action" (p. 102); and accordingly a thing may be defined as an agent, an activity, or a cause. But is change to be defined by any of these terms? He does not seem so to teach. He says, "Change penetrates to the centre of the thing" (p. 99); change, therefore, seems not to be the thing itself; it certainly can hardly be conceived as a second thing entering into the centre of the first thing and making it into a third thing. "The members of the series A , A^1 , A^2 , etc., are related as cause and effect, although, by reversing the conditions, any one may be cause, and any one may be effect" (p. 94). The process of change is defined by saying that "something becomes something else" (p. 92). Change is a becoming. But when it is said that one thing becomes another, it cannot be meant that the becoming is a *thing*,

distinct from A and A¹. To be sure, sometimes this principle of change is represented as all-absorbing. "If we make becoming the absolute principle, nothing ever is, in the sense of a fixed existence, but is constantly becoming" (p. 82). According to this, then, change seems to be called the only reality. But if it is such, then our dilemma is only transferred from the "becoming" to the "thing" that becomes. Is the thing a real thing? If not, if it is really nothing, then the "becoming" is a predicate of nothing. There is an eternal becoming—an eternal process, or flow—but there is nothing that becomes! On the whole, however, our author sticks to the representation that in the process of change something becomes something else. He even goes so far as to say that where there is no appearance of change there is still a series; only it should be represented by the formula A, A, A, etc., which means that there is a "continuous reproduction of A" (p. 83). "Reality is incessantly reproducing itself, either in the form A, A, A, thus producing the appearance of permanence, or in the form A, A¹, A², etc., thus producing the appearance of change" (p. 95). Change is here represented as a series or succession of things or realities. The realities are represented by A, A¹, A². The change is the process by which the one becomes the other. But the question comes back, Is the change a *thing*? Apparently not.

But is change, then, *nothing*? Certainly not. What is declared to be a characteristic of all the universe, what is sometimes even promoted to be "the absolute principle," cannot be called nothing. And so, so far as can be seen, our author's doctrine of change can hardly escape the charge which he brings against the ordinary doctrine of space, namely, that it "hovers between making" change "something and nothing."

Let us pursue this doctrine of change a little further, and see how it accords with the author's idealism. We do not

wish to induce him to abandon the doctrine. We rejoice that as to this one point he is willing to fall back on common sense, and we welcome him as a fellow-believer in the objective reality of change. But we find it difficult to follow him in his representation of the doctrine. He assures us that A , when it becomes A^1 , is changed to its centre. A^1 is no more like A than it is like B , strictly speaking; it is said to be like A only in the sense that it can be developed out of A and cannot be developed out of B . A and A^1 "are related as cause and effect" (p. 94). But to this the objection naturally occurs that, as Professor Bowne elsewhere (p. 106) properly insists, no effect is the result of a single cause. "All conditions are co-operating causes." "All effects in the system must be viewed as the result of the interaction of two or more things." What becomes then of the standing formula A, A^1, A^2 ? It cannot be said that A causes A^1 , for a "complex of things" constitutes the "ground of an event." So then the formula should rather be $A+B+C=D$; and thus the careful distinction that A can pass into A^1 , but cannot pass into B , proves to be fallacious. All things pass into one another, and the effort to maintain a faint show of identity in the midst of the incessant process of change seems to be a failure.

Let us look at this question from another point of view. Change is asserted to be a fact on the ground of actual experience and observation. But what does experience cognize? Instead of dealing with A, A^1, B, B^1 , etc., let us take a concrete case—water changing into ice. How do we know that the water has become ice? Granted that before we saw water, and now see ice, are we sure that the one has been developed out of the other? If we are, it must be because we have observed that the ice has taken the place of the water, that the water has not been removed, and replaced by ice brought from somewhere else, but has been annihilated as water, and become ice. But this can be known only

on condition that we have an antecedent knowledge of the *space* relations of the water. It is a particular body of water, identified as being in a particular *place*, which we perceive to have become ice. If we are sure about the change of the water into the ice, we must also have known about the quantity; and this again involves a space-relation. If, say, a glass has been known to be one-quarter full of water, and is afterwards found to be full of ice, we know that the ice cannot all come from that water. In short, we can have no knowledge of such a concrete case of one thing changing into another, except as we antecedently have an acquaintance with the space-relations of the object changed.

We may go further and say that, on Professor Bowne's theory, it is impossible to affirm that water is changed into ice at all. Even if we concede that we now see ice where before we saw water, what of that? In a flowing river one body of water every moment occupies a space just occupied by another. Is the one changed into the other? It will not avail anything to say that in this case we see one body of water moving away and another coming in; for according to phenomenalism there is no objective motion at all. The notion that the water moves is a mere notion. All we are permitted to know is that in the one case one body of water *seems* to have been replaced by another body of water moving into the same place, whereas in the other case a body of water seems to have been replaced by a body of ice without our having had any experience of seeming to see motion. But how do we know but that the water disappeared unbeknown to us, and the ice took its place without our seeing the process? We only know that, whereas we

pressions which are purely subjective—impressions which do not represent or reproduce in us any objective fact. At the best we are only allowed to assume that something objective to us has caused us to have these sensations. But even then we can only go so far as to say that this objective cause makes us have first this sensation, then that. "In any case," we are told, "the infinite appears as the real objective ground of our sensations; and we have seen that, if these sensations were given, the world of finite persons and things might fall away without our missing them" (p. 480). If, then, our sensations are of themselves no evidence that there is a world of finite persons and things, still less can they give us evidence of the change of one thing into another. On our author's ground we are allowed to know only that we have a succession of sensations, and that certain of these sensations are associated together under the purely subjective categories of time and space. But just because these categories are purely subjective, we are debarred from drawing from them any inferences as to objective fact. We have an *impression* that what was water a little while before has now become ice. But this impression involves, as an essential element of it, the conceptions of time and space. A substance occupying a certain portion of *space* at one *time* has at another time been replaced by another substance. The notion of *change*, as we have seen, does not *necessarily* come in even when we assume that the substitution has taken place. But the notion of change has no meaning except as time is involved. Professor Bowne's contention that the notion of change logically precedes that of time I have considered in my previous article. But even if we should try to believe his proposition, we are blocked at once by the obvious fact that in any concrete case of experience of change we are obliged to make our observations under the conditions of time and space. When we think we see a thing change, we can only mean that what *before* was one thing is

now another thing. Even our author can hardly deny this. His own language implies it. "Change, in its scientific and philosophic sense, implies causal *continuity* of being, and is identical with becoming. The *past* founded the *present*, and the *present* founds the *future*" (pp. 79, 80). Again he says, "The process alone *abides*; its phases are *forever* coming and going" (p. 82). "Nothing is in the sense of *enduring*, but is *always* becoming" (p. 83). Again, "Our doctrine of change, therefore, does not conflict with the unity of the thing, for the thing is *never* A and A¹ and A² at the *same time*" (p. 93). I have italicized the terms which denote time as an element in our notion of change. But even if the author had been still more successful than he was in describing change without implying time as presupposed in it, he yet can hardly pretend that men are not obliged to perceive and think under the mental "form" of time and space, and that in *every empirical cognition of change* time and space necessarily enter into our conception of the process. He confesses that our sense and intuition are tied down to these forms; only our reason has discovered that time and space are nothing but principles of intuition and not of things. Very well, but still the actual experience of *seeing things change* must take place through the "forms" of time and space. This Professor Bowne squarely admits: "If space be a principle of intuition, its necessity in intuition is fully explained, and the impossibility of intuiting things apart from it becomes apparent" (p. 205). "The doctrine does not imply that events can be conceived as temporarily co-existent, any more than the ideality of space implies that things shall be conceived as spatially coincident" (p. 232).

Accordingly it is confessed by this form of idealism that in our actual cognitions—in our "intuiting" of things—it is impossible for us not to conceive them under the forms of time and space. If we cannot "intuite" things except under these conditions, *a fortiori* we cannot cognize *changes* in

things except under the same conditions (for the cognition of things must precede that of changes in them); and yet, strange to say, Professor Bowne would have us believe that the very notion of time is the consequent of change! "In the common thought time exists as a precondition of change; in our view change is first, and time is but its form" (p. 237). "Time depends on change; and the idealist's claim must be that time is but the subjective aspect of change, or the way in which we conceive change" (p. 227). And space in like manner is made dependent on cognition. "The mind is under the necessity of having no unrelated objects in intuition as well as in reflection. Hence it is forced to relate its objects to one another in intuition, and the result is our complete space-intuition, in which everything is related to everything else, and has its proper place" (p. 444). Here, then, space is described as the "result" of the mind's necessity of "relating" its objects—the necessity we find ourselves under of putting everything into its "proper place." "The conception of space as a unit," it is added, "is, doubtless, a product of abstraction from the results of this relating activity" (p. 445). So, then, the mind's first business is to put things into their proper places. How this can be done unless there is place to put them in, we are not told. But the mind is "under the necessity" of doing it; and what *must* be done of course *can* be done. Having got things thus put to rights, the mind finds that it has developed a conception of space. "We do not claim," we are told, "that we start with any conception of space whatever, and, least of all, that space is originally known as one, infinite, etc. But the soul has the necessity of relating all its objects in intuition, and hence, whenever any new point is posited, it at once relates it to all other points. But the positing of points is possible in all directions, and thus arises the conception of a space extending equally on all sides" (p. 445).

Now this may be all very luminous to some; but those

not versed in metaphysical subtleties must be impelled just here to put in a question or two. The soul of the baby, we are given to understand, signalizes the beginning of its career by "positing points." Whenever a new point is posited, it at once "relates" it to all other points. One might ask, What shall be done with the *first* point before any other points have been posited which it can be related to? But this may sound like trifling with a serious subject; and we pass on to ask, What is meant by saying that points can be posited "in all directions," *before* the conception of space arises? To the unmetaphysical and untrained mind this looks very much like an absurdity. It *seems* impossible to posit points in all directions, unless there are all directions to posit them in. And it *seems* self-contradictory to assume that all these directions exist, except as they imply the existence of space. This is certainly the judgment of "common sense," and for one I have not got so far above common sense as to be able to see the matter otherwise. At all events, a philosophy which undertakes to persuade men to abandon the common notion of space on account of the contradictions which are said to beset it, can hardly expect to be successful so long as it cannot but seem to indulge in contradictions in the effort to recommend itself.

Let us look at this matter in another aspect. Motion, we are told, must be regarded as phenomenal, not real. This follows directly from the doctrine that space is not objectively real. But immediately after it is said, "Motion is a form of change, but all change is not motion" (p. 242). Now the first question here suggested is this: How is it, if motion is a form of change, that change should be represented as a real objective fact, while motion is declared to be not such a fact? Does the author mean that only such changes as do not involve motion are objectively real? It seems to be necessary so to understand him. But it would be interesting to see how such a distinction could be carried out.

What changes in the world around us can be specified which are not produced by some kind of motion? All changes of position consist purely in motion. But changes in stationary things are none the less caused by motion. When water freezes, or milk coagulates, or cider ferments, or a wet cloth becomes dry, or an apple decays, the change consists in a movement, though it may be an invisible movement, of particles. The more minutely physical phenomena are investigated, the more is it found that all the changes that take place are nothing but some kind of chemical or other movement of the constituent parts of the visible objects whose changes are observed. Even when these movements cannot be perceived, the *effects* are perceived through the agency of some kind of motion. Thus, the change of color on a growing apple is perceived, we are told, only by virtue of certain undulations which affect the nerves of the eye. Scientists are inclining more and more to believe that there is incessant motion in the atomic elements of material substances, even where the most powerful microscope is unable to detect it. In a certain sense, then, there may be motion where there *seems* to be no change; but where can change be found which does not involve motion?

When now we are told that not all change is motion, it may not be safe to question the truthfulness of the statement. But we must at least be allowed to ask for what has not been given—a single instance of change in which there is no motion. If the author has in mind mental changes—changes that have no relation to space—well and good. But he has laid down the doctrine that change is a reality outside of the mind. Now what kind of changes there can he point out to us which do not consist of motion, or which are not made cognizable by motion? He seems to be very

he impugns the judgment of common sense with regard to sense-perception. But the whole drift of physical science is in the direction of discovering some form of motion to be the essence, or at least the invariable characteristic, of all the changes that are observed to take place.

It is, therefore, quite incomprehensible why Professor Bowne, after he has relegated time, space, and motion to the category of subjective "forms," should so zealously champion the objectivity of change. We cannot get any idea of change except through intuitions which are controlled by notions of space, time, and motion. The more the phenomena of change are examined and analyzed, the more they seem to consist in nothing but motion of some sort or other. And yet while motion, and with it time and space, are all abolished as being mere appearances, change is defended as being an objective reality! And on what ground? In the chapter on "Change and Becoming" the only ground given seems to be that "change is the most prominent fact of experience" (p. 77). This, however, could be equally well urged as a ground for believing in the objective reality of space and motion. Why change should be singled out as something whose reality should be taken for granted, is hard to see. Yet this is practically taken for granted; and the author's whole strength is employed, not in proving the reality of change, but in trying to show that one can believe in its reality without absurdity! At the best his success in showing this cannot be called very great; and the effort would be a manifest failure, if he kept before himself and his readers in this chapter, what he argues later, that motion which constitutes the soul of all we know of change, is nothing but a subjective conception.

tween subjective idealism and his own view, which he calls objective idealism, or phenomenalism. While rejecting the atomic theory, in so far as it assumes the existence of independent substances, he accepts it as a working theory; but when speaking metaphysically he would define atoms as "a series of related elementary activities in the infinite such that they produce for us the appearance of a world of things spatially discrete" (p. 303). To these activities he would attribute in some sense an objective reality. But why does he not make clean work with his idealistic assumptions, and declare mental states and activities to be the only reality? Why does he not account for the coincidence of the impressions of different minds covering an outward world by assuming that God simply "produces consistent and harmonious ideas in different minds"? His reasons are these: (1) "Our ability permanently to modify phenomena seems to point to something beyond our presentations;" (2) "the phenomenal world not only suggests a reality beyond our thoughts, but also a history. The fossils and strata of geology, and the general wear and tear of things, point to a continuous and independent process;" (3) "perception claims to be a revelation of things and processes without us; but on this theory of subjective idealism it is a pure fiction" (p. 471).

Well, what is the objection to supposing that it *is* all a "pure fiction"? This is certainly the conclusion to which the whole drift of our author's philosophy tends. "Our ability permanently to modify phenomena" proves nothing, if his philosophy is correct; for the notion of *permanence* is a temporal notion; and time he has discovered to be no

we have been over and over assured, is all in the eye, and has no objective reality, the modification of the color must also all be in the eye.

Then the second reason is equally inconclusive. "History" and "continuous process" are terms which again imply *time*; but since time has been shown to be nothing but a mental crotchet, what right have we to project this mental "form" upon outward things, and talk as if they had existed and changed in time? I know that Professor Bowne thinks there can be a series or succession without time; but I know also that, when he is expounding his theory of A, A¹, A², etc., he tells us that "the thing is never A and A¹ and A² *at the same time*" (p. 93, italics mine)—which explanation, if it means anything, means that, after all, time is involved in the process. If the thing is not A and A¹ at the same time, then it must be A and A¹ at *different* times. A must come *before* A¹, or *after* it, in *time*. When a man says he sees a fossil, what is the fact, according to phenomenalism? Why, he has a mental modification which consists in his having certain sensations described as those of color and of hardness, and certain intuitions described as those of form and extension. That is all. And that is all in the mind. How does it "point to a continuous and independent process"? All that we know of processes we know (or think we know) under the "form" of time; the notion of process is therefore a mental notion purely. To infer a geologic process which took place when no one was looking on, is projecting this subjective time-condition into the objective world, and is quite illegitimate.

The third reason is as impotent as the others. "Perception claims to be a revelation of things and processes without us." Well, what of that? Has not our author elaborately argued that the "claims" of perception are for the most part fraudulent? Perception claims to tell us of form and motion and density and color and chemical qualities in out-

ward things. But the philosopher assures us that none of these claims are to be conceded. In short, every particular thing that perception says about "things and processes without us" is serenely discredited; and it is hard to see why, after giving perception the lie so long, he should at last yield anything on the simple ground that perception "claims" it. Indeed, we may go further and say that just what our author says "perception claims," is just what it does not claim. Perception has to do only with perceptible qualities. We perceive form, color, weight, etc.; but the "thing" under or behind these sensible qualities, though irresistibly inferred by the mind, is not what "perception claims" to reveal.

There seems, then, to be no satisfactory reason, on the ground of our author's philosophy, for concluding that there is any outward reality attested by our perceptive experience. And that these reasons are metaphysically unsatisfactory, he himself virtually confesses, when he immediately afterwards admits that the purely idealistic view "is entirely possible and admits of no disproof." His real reason is not a metaphysical one at all. It is, he says, simply "the ethical conviction that such a tissue of deceit and magic" as pure idealism charges upon the Supreme Being "would be disgraceful and outrageous" (pp. 471, 472). Now we must honor his strong confidence that God cannot be guilty of such conduct; but it is difficult to suppress the conviction that this argument, if it is worth anything in settling metaphysical problems, needs to be employed at other points, or else cannot be legitimately employed at all. He relies upon it especially in combating the doctrine of "solipsism" which extreme idealism leads to—the doctrine that "our thought of persons other than ourselves is as purely a subjective product as our thought of things other than ourselves." To adopt such a view, he says, would be "to reduce philosophy to a low and disingenuous farce, and to justify the contempt of every

earnest mind. We say disingenuous, because every such speculator forthwith seeks to induce others to accept his views, although by hypothesis they are only fancies of his own" (p. 457). To which we must all say Amen, and for the obvious reason that the doctrine carried out to this extreme involves a positive *absurdity*. A holds himself to be the only real person, and B, C, etc., to be merely the phantoms of his mind. B, on the contrary, holds *himself* to be the only real person, and A, C, etc., to be phantoms. All are at once real persons, and all are phantoms. This bald absurdity would seem to be sufficient reason for throwing the doctrine overboard. But, strange to say, Professor Bowne does not think this reason sufficient. According to him, since "the infinite mediates all interaction of the finite;" since "God is the cause of causes and the true objective ground of our changing states,"—it follows that, "if these states were given in their present order, we should as certainly construct a world of persons as we do a world of things. If the world of persons should drop away, we should never miss them, but should continue to have the same apparent personal interaction and communion which we have at present." "What, then," it is asked, "is the real ground for admitting the existence of persons?" And the answer given is: "The true reason can be found neither in psychology nor in metaphysics, but only in ethics. Our belief rests ultimately upon the conviction that it would be morally unbecoming on the part of God to subject us to any such measureless and systematic deceit" (p. 457).

So, then, we have this singular state of things—or rather, state of mind: Solipsism is discarded, not because it involves an absurdity, although it does involve an absurdity, but because it makes God a deceiver. The reality of space and motion is discarded, because it involves an absurdity, although it in truth does not involve an absurdity, and although the denial of their reality makes God a deceiver!

This last imputation the phenomalist, I know, will repudiate. But he cannot succeed in escaping from it. If time, space, and motion, which the mind is compelled by its very constitution to regard as objective realities, can be pronounced to be merely subjective "forms," then they are delusions. It does not help the matter to say that we are endowed with a rational faculty which enables us to discover that time and space and motion are not the objective realities which all men are naturally compelled to think them to be. This only amounts to saying that, though men are deceived, a few men are shrewd enough to find out that they are deceived. Nor is it of any use to compare men's notions of space and motion with the delusive impressions of a color-blind man. If all perception of color is purely subjective, it is not clear but that the color-blind man sees just as accurately as any one else. But if our notions of time, space, and motion are mere notions, then we are deceived, in spite of the pretended elucidation of the matter which "reason" has involved. For there is no principle of our rational nature more necessary and more ineradicable than our impulse to regard time, space, and motion as "forms" of things. If one man's "reason" tells him that this impulse is an entirely mistaken one, it is pretty certain that the reason of most other men will pronounce this man's reason to be itself mistaken. There will never be an end of delusion of some sort, until reason learns to adjust itself to the fundamental intuitions of the mind.