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Temporality and Psychological Action at a Distance

Richard N. Williams

Brigham Young University

This paper discusses the manner in which Isaac Newton proposed to account for the phenomenon of action at a distance. His struggles arose from the attempt to maintain the corpuscular metaphysics (or, "metaphysic of things") common in his day. In psychology the same difficulty arises in accounting for the effects of past events on present behaviors. Traditional theories account for this "psychological action at a distance" by proposing various constructs and structures that serve the same function that aether served in the physical explanations of Newton's day. The paper argues that such explanations are unsatisfactory, and unnecessary once the assumptions of the metaphysic of things are given up. An alternative understanding of human action grounded in interpretation and free from the constraints of linear time and corpuscular metaphysics is presented to account for the subtle relationship of past events to present ones.

Modern psychology, as well as modern culture, takes for granted that combination of thought and method commonly designated "the scientific revolution." In the modern mind Isaac Newton has come (deservedly) to occupy a central and integrating position in the march of progress that has brought us to the enlightened and affluent technological state we now enjoy. In the midst of our own enlightenment and enjoyment, however, it is sometimes difficult to be sufficiently analytical and critical of our intellectual and technological heritage. Rather, as a culture we maintain, implicit and unarticulated, the presuppositions and paradigms of the past, which seem to have served us so well.

The "Newtonian world picture" (and it is recognizably imprecise and oversimplified to call it simply "Newtonian") has become for psychology a sort of unimpeachable paradigm. Its assumptions are our assumptions; its vocabulary, methods, and questions provide the framework for ours. This scientific/philosophical hegemony is understandable because of the impressive technology

Requests for reprints should be sent to Richard N. Williams, Ph.D., Department of Psychology, Brigham Young University, Provo, Utah 84602.

the practice of Newtonian science has produced. Modern physics, of course, recognizes the limitations of Newtonian science. It is no longer the "real" description of the physical universe, but rather a way of dealing with that universe that provides an important level of control and predictability, and, thus, technology.

In the absence of any particularly impressive psychological technology that might justify our discipline's fidelity to the Newtonian model, the discipline of psychology should muster the courage and the will to be sufficiently critical of the model to be free of it. This call to reject traditional natural science paradigms, their mechanisms, reductionisms, and even their methods is not new in psychology (see, for example, Gauld and Shotter, 1977; Gergen, 1973; Gergen and Morawski, 1980; Giorgi, 1970; Harré, 1977; Rychlak, 1981.) In fact, one suspects that most of those who have made the criticisms are as tired of making the critical arguments as the rest of the discipline is of being thus criticized. Nonetheless, it seems as defensible now as it was decades ago to argue that our discipline, to its detriment, is basically Newtonian, and unexaminedly so.

The Newtonian model we continue to uphold was radical in its own time. Gravity, as Newton conceived it, presented a challenge to the prevailing mechanistic philosophy — how to account for *action at a distance*. Scientists and scholars, including Newton himself, made various attempts to reconcile gravity with the "corpuscular (or mechanistic) theory" (see Bynum, Browne, and Porter, 1981, for a brief historical introduction to this theory) but were ultimately unsuccessful. The challenge was finally resolved by admitting another construct into the explanatory pantheon. The troublesome phenomenon could be adequately explained by the existence of *force*. This modification of the prevailing metaphysic allowed most of the prevailing mechanistic world view to remain intact. More recently, theoretical physicists (e.g., Bohm, 1980) have continued to call for a more radical and complete rethinking of the mechanistic view, suggesting that the troublesome phenomenon (action at a distance) is, perhaps, at the very heart of the understanding of the universe, rather than at the periphery, where perplexing anomalies customarily reside.

Psychology has struggled with its own version of *action at a distance*. Here the question is how past events, traumatic ones, for example, can affect present behaviors. Because of their commitment to a mechanistic or corpuscular philosophy (or a "metaphysic of things," Faulconer and Williams, 1985; Williams, 1990a), psychologists have followed an explanatory course remarkably similar to that of the Newtonian and post-Newtonian physicists who attempted to account for gravity. And, they have met with the same conceptual success. Failure to account adequately for psychological action at a distance provides occasion for reevaluating the discipline's commitment to a

Newtonian, and thus a mechanistic and corpuscular, world view. The present essay will offer one alternative account of the phenomenon of psychological action at a distance, drawn from hermeneutical philosophy, which seems particularly promising.

Physical Action at a Distance

Cohen (1980), in his treatment of *The Newtonian Revolution*, suggests that just as important as the content of what might be called Newtonian physics — the laws, the equations, and the constructs — was the system Newton introduced for doing physics. His approach, or project, had three phases.

First, he carefully worked out the mathematics of his laws and corollaries, propositions, and theorems. The content of these laws and propositions was purely mathematical. Interspersed among the mathematical propositions of the *Principia* (see Newton, 1687/1960) were various *scholia*, wherein Newton suggested how these laws and principles might relate to the physical (or metaphysical) world. He seemed quite content, however, to remain in the mathematical sphere, indicated by the title of Book III of the *Principia*, "System of the World (In Mathematical Treatment)."

The second phase of the Newtonian system was to see, through careful empirical observation, whether the mathematics worked out in phase one really fit the phenomena of the world. At this point Newton made perhaps his greatest contribution to the science of our Western tradition. His method has come to be science. Newton seemed convinced that the mathematical systems he had worked out did indeed provide a satisfactory description of the world of physical events.

The third phase of Newton's project was the most controversial and the most difficult. After the mathematical proofs and the empirical verifications came the time to dispute about the causes of the effects empirically observed and mathematically described. At this stage the system becomes philosophical and involves the doing of metaphysics (or something quite like metaphysics). Here Newton seemed to have become less certain of, and less satisfied with, the state of his project, and some of the earliest criticism directed at him was directed specifically at this metaphysical project.

Cohen (1980, p. 69) reports that the Dutch physicist Christian Huygens, even before the publication of the *Principia*, wrote in a letter to a colleague that he "hoped Newton would not 'give us suppositions like that of attraction.'" What Newton had established mathematically, and what had been supported empirically, that is, that bodies exert influence on one another, often over great distances, especially in the case of the heavenly bodies, contradicted the philosophical mechanism that was then assiduously held to as the only appropriate metaphysics. It seemed to introduce back into physical

explanations some sort of occult power — called "attraction" — as a cause of physical events.

The corpuscular, or mechanistic, philosophy held that all reality was composed of units of matter (corpuscles) and that acceptable explanations of all phenomena should be rendered only in terms of this matter and its motion. This view has its roots in the atomism of Democritus, Epicurus, and other early materialists and was carried forward in various forms to the 17th century and into the works of Galileo, Bacon, and Hobbes. The hold of this metaphysic seems to have been as strong then as today. Newton seemed disinclined to refute it.

The problem Newton introduced into the prevailing mechanistic world view concerned motion. The corpuscular view invokes corpuscles of matter in motion as the explanation of all phenomena. However, since these corpuscles constitute the totality of what is, they can be set in motion only by other such corpuscles in motion. In order for this to occur, they must come into some direct contact. That is, the motion must be transferred to the matter directly or through some medium that makes contact with both the mover and the moved. Newtonian gravity seemed to produce motion with no direct contact.

Cohen (1980, pp. 110–117) suggests that, in the light of this philosophical difficulty, Newton had three choices. First he could accept that nature endowed bodies with a force that attracts over great distances, but this contradicts the principles of mechanical (corpuscular) philosophy. Although later Newtonians seem to have taken this tack — as has most 20th-century Western culture — Cohen is adamant that the evidence suggests that Newton himself did not. His second option was to abandon his own work and reject the mathematical truths he had formulated and the body of evidence that linked it to the physical world. This he chose not to do. The third choice was to accept the facts of gravity and, thus, attraction and seek for ways to explain them within the mechanistic framework. This, Cohen assures the reader, is what Newton did.

The search for a suitably mechanistic account of gravity did not originate with Newton. Descartes had postulated the existence of a sort of "subtle matter" (subtle, because less extended than extended matter) that filled the spaces between bodies of extended matter and thus provided a medium through which motion and influence could be transmitted. Vortices in this matter accounted for the attraction and motion of celestial bodies. It was quite clear to Newton, however, that attraction was toward bodies, not positions — such as the position of a vortex. While he was not inclined to invoke vortices as explanations of attraction, he nonetheless retained the concept of an aether, some sort of extraordinary corpuscular matter through which motions and influences of more ordinary matter can be transmitted continuously.

Early on, Newton explained attraction by the effects of an "aethereal shower," or stream of aethereal particles striking bodies and producing motion through impulsion. Later he spoke of variations in the density of the aether leading to differences in resistance, and even of vortices in the aether. After 1684 it became clear to Newton that aethereal explanations would not do because the effects of aether were observed by experiment to be very small or negligible. By 1693 Newton seemed to have given up on an explanation for gravity. In a letter to Bentley (Cohen, 1978, p. 303) he wrote:

> Gravity must be caused by an agent acting constantly according to certain Laws, but whether this Agent be material or immaterial I have left to the Consideration of my Readers.

Newton ultimately returned to explanation in terms of aether in his later writings. In this same letter to Bentley we have some sense of his commitment to mechanism (Cohen, 1978, pp. 302–303):

> That gravity should be innate, inherent and essential to matter, so that one body may act upon another at a distance through a vacuum, without the mediation of anything else, by and through which their action and force may be conveyed from one to another, is to me so great an absurdity, that I believe no man who has in philosophical matters a competent faculty of thinking, can ever fall into it.

To accept action at a distance, in light of mechanistic philosophy, seems to be to accept mysticism. Fatio de Duillier, in the notes of the Royal Society (Cohen, 1980, p. 119), despairingly reports that Newton would "often seem to incline to think that Gravity had its Foundation only in the arbitrary Will of God."

In order to avoid mysticism and maintain mechanism, later Newtonians simply did what Newton would not. They explained action at a distance in terms of *forces* that are elementary properties of matter (van Lunteren, 1988). This is somewhat unsatisfactory philosophically since it merely names a cause and in so doing creates a metaphysical entity — force — which requires explanation every bit as much as the original phenomenon — attraction. This solution to the problem is purely semantic in that *force* and *attraction* can be used interchangeably. The former has no explanatory power or clarity not already available in the latter (see Williams, 1987, 1990a, for a fuller account of how this is the necessary result of adherence to a metaphysic of things). The modern mind seems to have become content with this level of explanation, however, which is probably telling testimony to the power of the metaphysic of things over the modern mind.

Psychological Action at a Distance

Psychology has explicitly tried to model itself after the physical sciences, embracing the same mechanistic philosophy that formed the basis of pre-twentieth century physics (see Leahey, 1987, and Robinson, 1985, for histories of the discipline that make this clear). It is not surprising, then, that psychology has had to deal conceptually with its own version of the action-at-a-distance problem. The problem of psychological action at a distance involves the connection between past and present events.

The corpuscular metaphysic and the mechanistic philosophy it generates have shaped psychology's view of its subject matter — human action. In psychology the elementary units or corpuscles are events — behavioral, cognitive, mental, environmental, or social. Since mechanism demands causal explanations of human phenomena, these elementary units must be somehow causally connected. To accept explanations that do not involve causal connections among events would be to adopt mysticism or vitalism, to appeal to causes outside and independent of the events themselves. Discerning the nature of these causal connections has presented the field with its central defining enterprise as well as its greatest problem.

The influence of past (and present) events on present behaviors is experientially undeniable. Human behaviors make sense of, and have their meaning in the context provided by the past as well as the present world of events. In the attempt to be true to corpuscular theory, psychology has attempted to explain the relation of past to present events by postulating the existence of the psychological equivalent of aether. Various theories have proposed various types of aethers, but they are all aimed at solving the same conceptual problem — explaining psychological action at a distance — and they all partake of the same problems that have beset theories of physical aethers.

In Freudian psychology, libido serves an aethereal function. As it is "dammed up" through repression, the pockets of libido preserve past events as traumas, or wishes, keeping them ever present. It is the expressions of past events preserved in libido that connect past with present and empower the past to direct the present. The only evidence for the validity or existence of libido, as well as repression, is the occurrence of the phenomena (influences of the past in the present) they were proposed to explain.

In the humanistic psychologies of Maslow and Rogers the aethereal function is more subtle, but still essential in the theories. For Maslow (1968), on a grand scale, present behaviors are guided by the state of satisfaction of various hierarchically arranged needs. A past event is influential in the present to the extent that it satisfies or intensifies need. It is the need (or neediness) that connects past with present events. Though Rogers (1951) speaks less of needs, nonetheless an "organismic valuing process" tends to carry the person

along the path to fulfillment of his or her potential. The past (as captured in fulfillment) is influential to the extent that it moves the person farther from or closer to that potential. It is this potential, its demands, and the satisfactions or frustrations related to it, that links past events with present ones and endows the former with causal power. Again, the only argument for the existence of such needs or processes is the necessity of explaining the smooth, purposive connectedness of an individual human life.

Behaviorism's reliance on an aether is perhaps more obvious than that of psychoanalysis and humanistic psychology. Past events, behavioral or environmental, are linked to present ones by "S–R bonds." Present behavioral events are, in fact, produced from such past occurrences. Stimulus–response connections operate in the present as well. In fact those bonds that link past events with present ones are produced as a result of similar event linkings that occur between temporally contiguous (or near contiguous) events. The function of these aethereal bonds or connections is to bring events into direct causal contact with one another. The only evidence for their existence is the relatedness of events which they are invoked to explain.

Some behaviorists, notably Bandura (e.g., 1974), attempt to account for the influence of the past as well as the future by suggesting that memory, or the capacity for symbolic processing, makes the past, or the future, actually present in the form of an expectancy, thus making them influential. This move is made precisely to avoid something that looks like a mystical or nonmechanical action at a distance, such as teleology or intentionality. This bringing the future into the present is, however, another species of aethereal explanation because it relies on present S–R bonds between environmental events and cognitive ones.

Cognitive psychology has taken the behaviorist search for the aether into the mind, and to greater levels of specificity. The essence of the information processing movement is to present behavior as the end or result of a continuous flow (or shower) of information through the processing system. This information is taken to be corpuscular, consisting of "bits," or "bytes." The elements of the processing system are also corpuscular, being discrete in their functions and capacities and requiring other processes and feedback loops to connect them. Again the strongest evidence for the existence of this environment of processes and processors is the elegant and properly mechanistic account of phenomena they were created to provide.

Time and Memory as Aethers

It has been suggested thus far that the major schools of psychological thought and theory have been formally, although unacknowledgedly, engaged in the search for and justification of various sorts of aethers to account for

psychological action at a distance. This engagement follows necessarily from their commitment to a corpuscular metaphysic and the mechanism it entails. Since Western tradition, for the most part, shares this commitment, it is not surprising to find examples of the search for aethers at a very general level, as in modern conceptions of time and memory.

The notion of linear time can be traced to Aristotle (see Williams, 1990b), but surely Newton did much to enhance the legitimacy and popular acceptance of the notion of absolute (and linear) time (see Slife, 1995, this volume). The received view has been that time is composed of corpuscular moments, all connected to one another in a continuous linear string. The continuity of events results from the connection of these moments. Causality or influence from the past "travels along" this string, transmitted from one moment to the next. Linear time thus serves the function of the aether, making possible the meaningful connection of past and present events. The various other psychological aethers make sense largely because of our unchallenged notion of linear time.

It seems to make a good deal of common sense to claim that past events influence present behaviors. The common-sense explanation of the influence is that we can remember the past event and it is able to exert its influence because of its "reality" in our memory. Our understanding of memory (which is common not only in our culture but in psychological theories as well) also betrays a corpuscular metaphysic. The phenomenon to be accounted for is *remembering* — an activity. The account is given in terms of the retrieval of *memories*, corpuscles. The account "corpuscularizes" memories, turning them into entities or bodies. Then, in order for the memories to influence present behavior, there must be some memory processes (or aether) as a medium through which memories and their importance can be transmitted to the present, where they impact other, current, corpuscular cognitions. This is accomplished by the aethereal processes of association that form the explanatory foundation of behaviorism as well as cognitive psychology.

A Hermeneutic Alternative to the Aethereal Search

Are there alternatives to the sorts of aethereal theories found in psychology as accounts of psychological action at a distance? I will argue that any alternative must begin with the rejection of corpuscular metaphysics — the idea that to be at all is to be a particular sort of thing (see Faulconer and Williams, 1985, 1990, for a more complete argument). It is this very metaphysic that makes the search for an aether so attractive and the alternative, acceptance of attraction at a distance, so unattractively mystical.

Modern physics has abandoned the mechanistic philosophy (see Bohm, 1980; D'Abro, 1951). The search for truly fundamental corpuscles has proven quite unfruitful, although numerous very interesting particles have been

encountered along the way. Modern physics has no need for aether because it has dissolved the artificial distinction between state, or entity, and event. It is now accepted, and mathematically verified, that events which have no possibility of being connected by any interaction at speeds less than the speed of light are correlated (Bohm, 1980). Some of the more entertaining and insightful illustrations of this idea are grounded in Bell's theorem (see Zukav, 1979, pp. 289–307). This theorem, mathematically derived, constitutes proof of the necessity of nonlocal causality. As Zukav (1979, pp. 293–294) summarizes:

> In short, Bell's theorem shows that the principle of local causes, however reasonable it sounds, is mathematically incompatible with the assumption that the statistical predictions of quantum theory are valid . . . . Bell's theorem not only suggests that the world is quite different than it seems, it *demands* it . . . . Physicists have "proved," rationally, that our rational ideas about the world in which we live are profoundly deficient.

The rationality the physicist has had to abandon is that dictated by corpuscular metaphysics, that which seems to require aether to account for connections between events, and that which psychology religiously upholds.

Commitment to this metaphysic has led psychologists (and lay persons as well) to "corpuscularize" events, sealing them off from one another, giving them boundaries or borders, isolating them, and giving them a "just-is-ness," turning them into *things* with metaphysical properties. Things, according to mechanism, must be put in motion — they must be brought into contact with other things — in order to influence them. Thus an aether is necessary. The alternative is to simply endow things — by fiat — with the power to influence other things. This is tantamount to the creation of the concept of *force*. It "works" and it makes us feel better but leaves us with precisely the same explanatory task we were trying to avoid, that is, explanation of something that is inconsistent with our corpuscular metaphysic. It thus begs the question.

One alternative to the rationality of contemporary psychology will be considered in the context of the present discussion, an alternative that can account for psychological action at a distance without invoking the mystically ineffable and without the postulation of an aether. The alternative comes largely from the works of Martin Heidegger (e.g., 1962), Hans-Georg Gadamer (e.g., 1982), and other hermeneutical thinkers.[1] The alternative starting point for an understanding of psychological phenomena is to avoid the "corpuscularization" of psychological (and other) events; that is, to avoid the reduction of events to things. If events rather than things are fundamental then the necessity of an aether is obviated in one sense because events are

[1]I should acknowledge that I was first and heavily influenced in my thinking on this issue by Joseph Rychlak, e.g., 1977, who might not want to be included in this classification as a hermeneutical thinker.

inherently "in motion" (although the argument requires further analysis). Events do not need to be acted upon to be put into motion, nor do they require a medium through which to move. They *are* motion. On the hermeneutical point of view, change rather than stasis is fundamental.

The rest of the argument against the necessity of aether revolves around the possibility that events, while grounded in particular temporal contexts, can somehow bring together past, present, and future in meaningful ways. This temporality in events is the essence of what Heidegger calls *Dasein*. In order to understand this temporality and how it "puts up" the past and the future in the present, an example might be helpful.

I have good friends from the upper Midwestern United States who speak with an accent (at least in relation to the way I speak). They round their vowels, especially their o's and u's. In order to accomplish this rounding, they must move the point of articulation from the roof of the mouth back to the palate area, and round the lips. All of this requires muscle movements of which they are not aware. Even if I were to make them aware, it would have very little effect on the phenomenon, except to make normal speech impossible for them while they were trying to be aware. People with this accent learn to make these "unconscious" muscle movements by experience, from hearing those around them speak and from speaking themselves. We might be tempted to say that it is their accent that causes them to perform these unconscious behaviors. However, if we inquire after the status of this powerful causal agent, we find it consists entirely and only of the exact muscle movements and thus the speech sounds it is supposed to explain. The "accent" was learned early in life but does not exist anywhere in the past or present, except in the concrete language behaviors of real people involved in the world now. Thus the present behavior constitutes and reconstitutes the past, without any aethereal connections. The accent is kept alive only in my friends' continued articulations. It has no existence in the past and no causal connection running from past to present. As an explanation, "accent" is an entirely empty construct.

The same relation of past to present events can be uncovered in the more clinically interesting case of a past psychological trauma. The observable phenomenon is some disturbance or "abnormal" behavior. The received psychological explanation of the behavior is that the past traumatic event is causing the abnormality — even if the person cannot explicitly acknowledge the causal link, nor even the reality of the trauma. How, then, it might be asked, does the past trauma connect with the present behavior in order to cause it? The psychologist is obliged to find some aether to explain the connection — engrams, memory traces, conditioning history, dammed-up libido, etc.

The recommended treatment for this pathology would involve intervening in some way to alter, change, or "work through" the past traumatic event. Thus

present behavior will be different because it will be a function of a new (non-traumatic) past event. This is all based, of course, on the assumption that the past traumatic event exists somewhere, as some sort of corpuscle, to be altered. If it is difficult to determine how a past event might really influence a present one, it is equally difficult to determine how a present intervention might alter a past event. The aether must "flow" or "conduct" in both directions.

The alternative view holds that the current pathology is not a state the client is in, aethereally produced by a previous event, but is an on-going activity. There is no pathology *behind* the current abnormal behavior — the behavior *is* the pathology. Likewise, there is no trauma *behind* the behavior — it exists only in the behavior (Sartre, 1975, makes a similar argument). The relationship between the past traumatic event and the current behavior is "constituting," rather than causal.[2] The traumatic event has its existence wholly and only in the current constituting of it in the behavior of the client. There is nothing (no traumatic event) "back there" making connection with the present behavior. Rather the trauma exists only as the person creates it through current language that is his or her activity, interpretation, behavior, or "predication" (Rychlak, 1977). In this way present behavior arises from and constitutes the past (as well as the future). Indeed, the past exists only as the present interpretative event. The implications for treatment are clear. Treatment should not focus on undoing the past by concentrating on the past as if it were composed of a host of corpuscular events contained in some supratemporal realm into which we can intervene. Rather, treatment should focus on helping the client to create and reconstitute his or her present involvement. This interpretive act might be thought of as an act of "re-living," in that insofar as the past has existence only in the living of the present, any living is a re-living or reconstitution of the past. By the same reasoning it is a foreshadowing of the future as well.

The fact that the person may not be explicitly aware of the relationship between a past trauma and present behavior does not invalidate the point of view described here. Indeed the demand that one should be aware of such things is based on the very assumption that is being challenged — that the event is corpuscular and really "back there" somewhere waiting and available to be uncovered and acknowledged. The alternative, hermeneutical analysis suggests that the trauma exists only in its present expression, and that the expression, like most language use, is seldom explicitly aware. It is, however, richly historical, expressing and reconstituting the historical, contextual fabric of the social life of the person.

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[2]I am using the notion of "constitution" in a way that makes connection with Sartre's (1957, pp. 32–42) notion of the function of consciousness, although my position differs from Sartrean existentialism in a number of ways.

If we do not corpuscularize human activity, that is, if we can avoid the metaphysic of things, there is no need for aether. Psychological action at a distance is seen to involve no distance at all, but rather, constant interpretive reconstitution. The relation of past events to present ones is thus much more intimate and meaningful than can ever be expressed by causal connections of corpuscles in aethereal interaction.

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