

William James' psychology, radical empiricism, and field theory: recent developments

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Abstract: William James is celebrated as a founder of American psychology, and his book *The Principles of Psychology* (1890) is regularly cited as the seminal text in launching experimental psychology in the United States. However, it is a mistake to take this book as James' final statement on psychology. Shortly after its publication, James abandoned its provisional dualism and formulated a psychology that begins inquiry with a field of immediate experience that is neither objective nor subjective. This shift in his thinking results in his philosophy of radical empiricism which takes the immediacy of a knower-known relational field as primary, and embraces the view that knowing is fundamentally a process of direct engagement with the surround. James' radical empiricism remains unfamiliar to most contemporary psychologists because attention to it has been deflected by much of the secondary literature. In the hands of the latter, James is often read from the perspective of the very meta-theory that he rejected, and the field theoretic, radical empiricist framework that shapes his later psychology is missed. Two criticisms of radical empiricism during James' day are examined, James' initial responses to those critics are considered, and those responses are expanded in light of recent contributions in ecological psychology.

Keywords: William James; radical empiricism; field theory; field of experience; ecological psychology.

1. *Introduction*

Each of the sciences stakes its identity with respect to a body of work rooted in a venerated history. Even as on-going knowledge goes well beyond a science's early foundational ideas, those initial beginnings continue to play a role in the science, even if they later operate mostly to establish the science's view of itself. In this vein, physics continues to celebrate its past by pointing to Galileo, Newton and Einstein; chemistry by recalling the contributions of Boyle and Dalton; and biology by honoring the contributions of Darwin and Mendel. When we turn to psychology, particularly in North America, the person who fills this role of establishing the field's self identity is William James.

But there is a deep irony in the nearly reflexive references to William James as an antecedent in so much of the psychological literature of recent decades. Even as many American psychologists point to James as one of the founders of their field, the core of James' vision for psychology remains unknown to most of its practitioners. Even more incongruously, much of mainstream experimental psychology over more than the century since James' death in 1910 has been operating from theoretical stances that are antithetical to his commitments, while they cite him as a forbearer. Indeed, much of mainstream American psychology has remained wedded to a tradition of ideas that James spent much of his career trying to displace. Is this any way to treat a founding figure?

2. *Why is William James so poorly understood among American psychologists?*

There are some psychologists in recent decades who have shown a deep grasp of James' vision for psychology (e.g., Crosby and Viney 1992; Reed 1997; Taylor and Wozniak 1997; Viney and King 2003), but they are the exceptions. Why is this case? Understandably, when beginning to examine the work of an historical figure, one might start with the secondary literature for guidance. In James' case, however, the secondary literature repeatedly offers up an erroneous claim. It is commonly asserted that James' later writings – specifically those after the mid-1890's – have little bearing on his psychological thought (e.g., Hergenhan 2008; Mandler 2011; Schultz and Schultz 2012). For this reason, it is argued that psychologists interested in learning about James should limit their attention principally to his books *The Principles of Psychology* (1890) and *Psychology: The Briefer Course* (1892).

This suggestion is extremely misguided. James' psychological theorizing only reaches its maturity in his writings that follow these two books. His formulation of radical empiricism, in particular, is the culmination of his psychological thought. But readers of James' work in contemporary psychology have little familiarity with radical empiricism in part because the secondary literature guides them away from it. As a consequence, surely the best known and most venerated historical figure in the history of American psychology, William James, remains poorly understood by much of the discipline. This circumstance is especially unfortunate because James' later writings anticipate a number of comparatively new developments in psychology and continue to offer direction for the field.

The standard assertion about William James in much of the secondary literature is that after publishing *The Principles* and *A Briefer Course*, and surely

by the mid-1890's, James gave up psychology for philosophy. Setting aside for the moment the 1899 publication of *Talks to Teachers about Psychology*, which alone seems to contradict that assertion, why would the erroneous claim that James abandoned psychology for philosophy continue to be repeated? Part of the confusion can be attributed to James himself.

In at least one prominent place James seems to divide his efforts into the psychological and the metaphysical (or philosophical). In the Preface to *The Principles*, James states that he intends to keep metaphysical issues separate from the psychology to be presented in this work. He writes in this regard, "... psychology when she has ascertained the empirical correlation of the various sorts of thought or feeling with definitive conditions of the brain, can go no farther – can go no farther, that is, as a natural science. If she goes farther she becomes metaphysical" (James 1890: vi). One problem with this assertion is that James did not adhere to it even within the pages of *The Principles* (see for instance chapters 5 and 6 on The Automaton Theory and The Mind-Stuff Theory, respectively). But even more evident is his conclusion in *A Briefer Course* – a location hardly tucked away in some obscure chapter in the book – where he explicitly contradicts that earlier claim about keeping psychology and philosophy separate.

When, then we talk of 'psychology as a natural science,' we must not assume that that means a sort of psychology that stands at last on solid ground. It means just the reverse; it means a psychology particularly fragile, and into which the waters of metaphysical criticism leak at every joint ... (James 1892: 334).

James' student and early biographer Ralph Barton Perry refers to this early shift in thinking as follows:

James' philosophical ideas were, of course, maturing steadily during the '90's; and there were already grumblings from his intellectual conscience. ... In the *Principles* he allowed himself the conveniences of dualism. But the whole trend of his philosophical thought both before and after the publication of the *Principles* had been *against* that provisional makeshift. He now saw with increasing clearness that he could not hold one view as a psychologist and another as a philosopher; and as his rejection of dualism became a more and more dominant motive in his thought, he saw that *he would have to correct his psychology* (Perry 1935, 2: 364, emphasis added).

If there is any doubt as to the accuracy of Perry's assessment, we can turn to James' 1895 presidential address to the American Psychological Association, where he concludes: "I have become convinced since publishing that book [*The Principles*] that no conventional restrictions *can* keep metaphysical and so-called epistemological inquiries out of psychology books" (James 1895: 168). On these grounds alone, it can be seen that any claim that James

gave up psychology for philosophy is unwarranted. It is difficult to understand how purveyors of psychology's history could miss these passages.

Perhaps, however, some readers have latched onto James' expressions of frustration with psychology in his correspondence. For example, in January, 1894 James writes to the German psychologist Carl Stumpf with exasperation: "For all the new psychologies either published or about to appear, there *ought* to be *some* sedimentary deposit of truth" (Perry 1935, 2: 188). Likewise by November, 1896, he writes to Stumpf: "I have given up trying to keep abreast of the progress of experimental psychology [...] what they contain is usually so much a matter of hair-splitting, that [they] [...] make no impression upon my memory at all" (190). And in September, 1899, he adds "I fear I am ceasing to be a psychologist, and becoming exclusively a moralist and metaphysician". But then he clarifies in that same letter that he means being a psychologist in the vein of how it is being implemented in the universities. "I have surrendered all psychological teaching to Munsterberg and his assistant, and the thought of psycho-physical experimentation, and altogether of brass instrument and algebraic-formula psychology fills me with horror. All my future activity will probably be metaphysical" (195). However, these statements are not rejections of his interest in psychological matters, only his rejection of how experimental psychology was being practiced – an indictment he had already proffered in *The Principles* (see Chapter 7). In that light, when James writes in his correspondence that he is leaving psychology behind, he clearly means psychology as it has been conceived and implemented particularly in German universities, and will soon be imported into the United States. By the 1895 American Psychological Association address, he is already beginning to formulate an alternative foundation for psychology. This alternative becomes the focus of much of his writings to the end of his life. It can even be seen looking back carefully at his earlier writings.

The ideas broached in the 1895 American Psychological Association address, and more fully developed in subsequent years, are likely to look rather foreign to contemporary readers, and for this reason they could be written-off as "mere" philosophy. However, its apparent foreignness stems from James' rejection of the foundations on which 19th century experimental psychology was grounded – foundations that still exert a dominant influence today. In its place, James calls for "*a natural science infinitely more complete than the psychologies we now possess ...*" (1895: 168, emphasis added). We will take up that alternative in the next section.

So why is William James so poorly understood among American psychologists? In the end, I suspect that the primary reason is that psychologists rely on secondary literature, which itself may be merely repeating its own errors. But

to quote the philosopher J.L. Austin, "There is nothing so plain boring as the constant repetition of assertions that are not true" (cited in Gibson 1966: xv).

3. *A field of experience*

There is no need to speculate how James might have started to "correct his psychology", because with his APA address in 1895 and then in his plans for teaching in the year 1895-1896 he started in on this project. And as we will see, the seeds for this alternative were already clearly in view in *The Principles*.

James' intentions are especially apparent in his notes for the psychological seminary of 1895-96, and so we begin there. At issue is the starting point for psychological inquiry. For James, the starting point is, as he stated in *The Principles*, with *phenomena*; but here in his notes, unlike in the book, the immediate data of experience is described as a "field". In later writings, he will refer to the field of immediate data as "pure experience". The James scholar McDermott (1977: vlv) considers it unfortunate that James did not remain with the terminology of a field consistently in his subsequent writings. For reasons that will be clear in what follows here, I agree.

James wants to start with the "raw" immediate field of experience, prior to any reflection, without presupposing that what is "there" is either the stuff of matter or of mind, or both. He sets aside initially any assumption about the ontological character of what is immediately experienced. "There *is* no stuff anywhere but data" (James as cited in Perry 1935, 2: 366). In doing so, he commits neither to a monism of materialism nor an idealism of 'mind stuff', and certainly not to a matter/mind dualism. According to Perry, "[t]he central idea was to substitute 'fields' of such 'stuff' – homogenous and in some sense continuous, but standing in peculiar functional relations" (2, 365). In this syllabus, James describes immediate experience as being "[f]ields' that 'develop,' under the categories of continuity with each other ... But nothing postulated whose whatness is not of some *nature* given in fields" (2: 365). That is, things, "whatness", are revealed as embedded in a field of immediate experience.

This emphasis on continuity in fields of experience had already been anticipated at least ten years earlier in his essay "On Some Omissions of Introspective Psychology" (1884), which became the basis for his chapter on "The Stream of Thought" in *The Principles*. There, in contrast to the British tradition of positing a mosaic of discrete sensations or ideas, James offers up a view of the on-going, continuous flow of immediate experience. This stream of experience is principally composed not only of objects of thought, but also and importantly of their relations. As for the ontological status of immediate expe-

rience of this flux of thinking, in *The Principles* he retained a tentative dualism, possibly content temporarily to treat mental experience as subjective, but more likely, refusing to commit one way or another as he kept “metaphysics” at arm’s length. But by 1895 he abandoned even a provisional dualism. He writes: “The datum in itself and intrinsically considered is no more inner than outer... the objective and the subjective parts [are only] seen retrospectively” – that is, on reflection (James as cited in Perry 1935, 2: 366).

Further, and significantly, the immediate datum is not punctate. It has “thickness” and continuity: “Around every field a wider field that supersedes it ... the truth of every moment lying thus beyond itself ...” (2: 366). We see this idea earlier raised in *The Principles* where he points to feelings of direction, of where thinking is going but has not yet reached. These “tendencies ... are among the *objects* of the stream, which is thus aware of them from within” (James 1890, 1: 254). In contrast, he continues, the objects and “definite images of traditional psychology form but the very smallest part of our minds *as they actually live*” (254, emphasis added).

Although this language of continuity and of fields may appear somewhat strange even to contemporary readers, it should be recognized that in employing it James was writing in the spirit of the burgeoning revolution in the physics and biology of his day. As we will see, there was a seismic shift in scientific thought over the course of the 19th century, especially in physics. The relative peculiarity of James’ later writings for contemporary psychologists can be attributed to the fact that until quite recently American psychology has been mostly untouched by these developments. Psychologists likely struggle with a conceptualization that emphasizes a “field” of stuff because, apart from sparse Gestalt influences, so much of the language and conceptual apparatus of psychology has long been wedded to a Newtonian perspective of the natural world. This perspective begins inquiry with the identification of primary elements of analysis, and then posits an extrinsic force that accounts for the connections among these units.

To clarify, in the preface to the 1687 edition of *Mathematical Principles of Natural Philosophy*, Newton proposes to apply mechanistic reasoning to understanding natural phenomena, such as the movements of the planets and the tides: “for I am induced by many reasons to suspect that they may all depend upon certain forces by which the particles of bodies, by some causes hitherto unknown are either *mutually impelled towards one another, and cohere* in regular figures, or are repelled and recede from one another” (cited in Watson, 1979: 27-28). In this formulation, one’s units of analysis are taken to be distinct, separate elements of matter, and organization among elements is accounted for by unseen forces, extrinsic to the elements, that draw them together or push

them apart. Newton famously hypothesized gravity as an unseen and instantaneous force to explain “action at a distance”, such as what holds orbiting planets in their place and how the moon influences tides. The postulation of such an unseen force is in keeping with Newton’s commitment to a mechanistic physics. As Hesse (1961: 141) points out, “[h]e continually speaks in terms of cause and effect, and his implicit view is that every effect must have an assignable physical cause, and even if we cannot recognize that cause directly, we infer it from the laws we find in the effects”.

This manner of thinking was adopted for the philosophy of mind by Locke, among others, who conceptualized the contents of mind as being comprised most fundamentally of basic units (“ideas”), “particle-like” separate, bounded entities. Locke went on to suggest that these separate ideas can be bound together by forces such that one idea might call to mind another. It would be Locke’s successors who would more fully articulate “laws” of this mental force, giving even greater weight than he did to the place of association in epistemology. It is important to emphasize that association would seem to play the role of an extrinsic factor operating independently of *what* is being associated. Although Newton offered misgivings about what gravity in fact was, those later 20th century psychologists who adopted association as a cornerstone for their theories rarely expressed reservations about the nature of association.

A recurring theme in *The Principles* was an outright rejection of the claim that the basic data of mind were either discrete or discontinuous. Further, when James does address association in *The Principles*, he does so with a critical eye. When we look closely at the seemingly abrupt transitions between objects of thought what we often find are “intermediary links of perfect naturalness and propriety” (1890, 1: 519). He turns to brain physiology as the basis for making sense of the processes that the term “association” stands for, describing it as “*an effect, within the mind, of the physical fact that nerve-currents propagate themselves easiest through those tracts of conduction which have already been most in use*” (563). Those supposed associative links among discrete units of thought, that in the hands of Associationistic thinkers operate independently of the character of those units, are part of the continuous fabric of thought for James. The relations, transitions, disjunctions, etc., in the stream of thought are directly related to the particular objects of thought they join. This point is central to James’ treatment of the stream of thought; and it will eventually serve as a cornerstone for his philosophy of radical empiricism. In the latter, the relations are as real as the objects, and play an essential role in the immediate field of experience, and in turn, in an adequate formulation of psychological theory.

Within physics, the Newtonian framework of a discrete collection of en-

tities bound together by unseen forces had been under attack beginning at least as early as the 1830's. What was displacing this view was a field theoretic approach to the physical world, most notably being developed by Faraday and then formalized by Maxwell (Forbes and Mahon 2014). Faraday tried to understand so-called action at a distance, Newton's use of the idea of gravity, by examining why it is that an electrical current in a wire can deflect a compass needle. Rather than there being empty space between the wire and the compass needle, which might lead to positing of some instantaneous force (i.e., gravity) exerting action from a distance, his studies pointed to a *field* of electromagnetic forces that is generated under such circumstances. What he showed was that the influence of the electrified wire on the needle was due to the production of a curved field of magnetic forces that has a real observable presence. Faraday showed in his studies of electromagnetism that what exists between two elements is not empty space somehow traversed by an unseen force, but instead a discernible *medium*. The elements, in this case the electrified wire and the needle, were not bounded, separate entities, but instead they reside in a *field* of continuous relations that they themselves generate.

Was James aware of this field theoretic work? There can be little doubt that he was. James's education in the sciences would surely have included an examination of the emerging work in physics on field theory. Even one of James' anti-Darwinian teachers, Louis Agassi, wrote about it (Neressian 1985). Moreover, his father Henry James, Sr., who was a well-connected intellectual in his own day, visited Faraday's laboratory (Richardson 2006). More concretely, in a well-known passage in the first chapter of *The Principles* William James made reference to magnets and iron-fillings, the standard materials for demonstrating an electromagnetic field. Textual evidence would suggest that James began thinking about experienced relations between elements by 1884, and relations intrinsic to the flow of thinking figured prominently in *The Principles* and its treatment of the stream of thought.

But in the psychology that emerges after the turn of the 20th century, the association of discrete "parts" – either sensations, ideas, or behavior units – was embraced uncritically by many American psychologists. With a framework of distinct elements and their connections as the dominant stance for many psychologists trained in the 20th century, James' writing about "fields" with continuity surely would seem odd, if not downright metaphysical, in a pejorative sense.

4. *Two challenges to James' claim that relations are present in fields of experience*

James' claim that relations among elements in the stream of thought are experienced has important epistemological implications. If connections between objects of thought are not *added* to immediate experience *post hoc*, owing to sheer contiguity among those objects, but instead are structures intrinsic to immediate experience, then there is no necessity to assume that perceptual experience invariably relies on an indirect mental representation that the *addition* of connections to immediate experience implies. That latter assumption, namely, the essential role played by mental representations, has been a staple of psychology for over a half century, and it reveals psychology's Newtonian commitments. James, however, felt that it is one of psychology's "fictitious puzzles" (1890, 1: 195). If objects and their relations are experienced, rather than only objects, then the claim that perception depends on an "intervening image" is undermined. With this stance, James lays the groundwork for a theory of direct perception and for his philosophy of radical empiricism.

James soon faced criticisms of this position, however. One challenge concerns the problem, "how can two minds experience the same thing?" If experience of the world is direct, owing to the fact that relations and the objects they connect are parts of the immediate field of experience, then when we introduce another perceiver into our account, it would seem as if a fundamental thesis in James' view of consciousness is violated. In *The Principles* James insists that the flow of thoughts of *separate individuals* are indeed separate. He writes: "[E]very thought is part of a personal consciousness" (225), by which he means that the thoughts of individuals do not mix and run together:

Each of these minds keeps its own thoughts to itself. There is no giving or bartering between them. ... Absolute insulation, irreducible pluralism, is the law. ... The breaches between such thoughts [of individual minds] are the most absolute breaches in nature (226).

But if perceiving features of the world is direct, how can it be that two individuals can perceive the *same* object without their minds overlapping? In unpublished notebooks, James puts the problem in this way:

In my psychology I contended that each field of consciousness is entitatively a unit, and that its parts are only different cognitive relations which it may possess with different contexts [within a single mind].

But in my doctrine that the same "pen" may be known by two knowers I seem to imply that an identical part can help to *constitute* two fields. ... [In that case, t]he fields are not entitative units, one of which at least is common to both ... (James 1988: 65)

In the ensuing pages of this notebook, which span over a year of reflection, James formulated the problem: how can an experience both be of an independent object that is known immediately, without a mental intermediary, and also be co-perceived by separate individuals without their thoughts literally running together? The beginning of a resolution begins to take shape:

I find that I involuntarily think of *co-ness* under the physical image of a sort of lateral suffusion from one thing into another, that a gas, or warmth, or light. The *places* involved are fixed, but what fills one place radiates and suffuses into the other by lateral movement, 'endosmosis.' (James 1988: 91-92)

Notable in the preceding passage is reference to a "physical image of lateral suffusion". Of course, a prototypical case of such suffusion is an electromagnetic field. The term "endosmosis" comes from the writings of Bergson, and it appears in these notebooks as well as in James' published work, *A Pluralistic Universe* (1909: 257): "[R]eality always is, in M. Bergson's phrase, an endosmosis or conflux of the same with the different; They compenetrates and telescope". In the notebooks, he writes that the mental experience is "the whole 'field' including the self, the body, and all that lies around it and between it & the pen or hand. 'Epistemological' relations obtain between parts of that whole field" (1988: 107).

For psychologists who work from a Newtonian meta-theory of elements and their connections, James's discussion of a field of experience must surely be baffling. However, by locating James' ideas in the context of the emerging 19th century field physics, this theoretical move can be readily appreciated. How then to resolve the problem of two minds knowing the same thing? James' resolution to this question remains contested, but his field theoretical solution is suggestive. He invokes the metaphor of a "wireless" or radio signal. "In the physical world, although a wireless message *radiates on all sides*, it is effective only where it finds an adequate receiver" (1988: 573, emphasis added). The adequate receiver in the case of perceiving an object would be a perceiver. Importantly, because the message remains external to a receiver without being wholly absorbed by it – as James puts it, "[being] an addition without being consubstantial" (576) – the message which "radiates on all sides" could remain a potential source for other "receivers" at any point within its range. In this way, "an identical part can help to *constitute* two fields" without compromising the integrity of two minds.

We must leave James' attempt to resolve the question "how can two minds perceive the same thing?" there, because James did not take it any further during his lifetime. However, as I have argued at length in a previous publication (Heft 2002), advances in resolving this question come six decades later in

the work of the perceptual psychologist, James J. Gibson. I will return to this contribution below.

A second criticism of James' radical empiricism, and with it "pure experience", is that it would seem to be devoid of the affective dimensions of experience that often seem apparent to the knower. James is accused, as he puts it, of treating inadequately "our pleasures and pains, our loves and fears and angers, in the beauty, comicality, importance or preciousness of certain objects and situations" (1912: 137). This criticism likely stems from the fact that James emphasizes that the entities of pure experience are experienced as cohering in one group of associates or another over time, and in doing so, the structural character of pure experience is stressed at the expense of "affectual" dimensions of experience.

In his own defense, James points out that his critics overlooked passages in the initial essay on pure experience ("Does Consciousness Exist") that did in fact begin to address such issues; but acknowledges that he may have not given them sufficient attention there. For this reason, he devotes an additional essay to this matter: "The Place of Affectual Facts in a World of Pure Experience" (James 1905a). James proposes that our experience comes as "extremely complex reticulations" such that its features can possess simultaneously different qualities, such as being "both energetic and inert" depending on the context within which the feature is considered. That is, while it may be the case that an entity seems to have inert properties when considered in relation to other entities taken as material entities – for example, it may have properties such as hardness or impenetrability – that self-same entity may be experienced as possessing a liveliness and vitality when considered in relation to other "groups of associates" in experience marked by affective rather than material qualities. The same entity in experience then can manifest physical properties when taken in the context of one set of associates, and also properties of an affective nature when taken in relation to others. For example, he asks, "Is the preciousness of a diamond a quality of the gem? Or is it a feeling in our mind?" James argues that it is simultaneously both, cutting across the objective-subjective divide – or more accurately, preceding the division of experience into an objective and subjective realm. In relation to other physical entities in the world, the diamond is precious in its relative scarcity among other objects owing to its particular crystal structure. And physically, this structure makes it a diamond rather than some other stone; and accounts for physical differences, such as relative hardness, as has been discovered with experience. Concurrently, it is precious in the affective domain, experienced as a singularly beautiful and dazzling object owing to its clarity and the manner in which light reflects from the facets of its cubic crystal structure. Few physical objects look quite like it. It also is precious in a sociocultural sense because of its relative economic

value and social status. With this *dual property*, the diamond stands out in the field of experience. It is an object of *interest*. In relation to other objects, this one comes forward as being particularly notable – it has value. The particular combination of feelings that accompany viewing this precious stone, “when they combine in a total richness, we call the ‘beauty’ of the object and treat it as an outer attribute which our mind perceives” (1912: 143).

This viewpoint differs from the approach typically found in psychology which treats objects in the world as devoid of value and meaning, with the latter qualities imposed on our experience of the object by subjective mental processes. To James, the preciousness of a diamond is an “affectional fact” – an expression that viewed from a dualistic stance is oxymoronic. Its singularity simultaneously in relation both to its place in the world of objects and its place in the aesthetic domain brings it to the fore. Other examples he offers include, “the storm is threatening”, “the man is hateful”, and “the situation is tragic”. In each case these prominent experiences are rooted both in the actual occurrences in the world and in the feelings that they generate. They are never experienced indifferently.

This proposal that the same entity has a dual set of properties, each revealed under different circumstances, should seem quite strange to one working from the framework of Newtonian physics. But in the wake of developments in field theoretical thinking, and in particular in quantum mechanics, it is no longer unprecedented. As is well known, light has been found to operate as a wave under some circumstances and as a particle in others. The theoretical context that led to this counter-intuitive view was stirring at the time James was developing radical empiricism.

5. *Radical empiricist thinking in contemporary psychology*

After James’ death in 1910, radical empiricism was kept alive by some of his students, principally Ralph Barton Perry and Edwin B. Holt. However, it failed to gain much traction in psychology. Both Holt and Perry could be written off as philosophers, particularly because psychology in the 1920’s and 30’s was focused on establishing itself an experimental science wholly separate from philosophy. Furthermore, even in philosophy it is probably accurate to say that radical empiricism was soon overshadowed in the 20th century by James’ companion position *pragmatism* as developed by Dewey and others.

The fruits of radical empiricism do not begin to appear again until 1960’s in the work of the perceptual psychologist, James J. Gibson (1966, 1979). In earlier publications, I have written on the radical empiricist roots of Gibson’s ecological approach to psychology (e.g., Heft 2001). In this final section of the

paper, I will highlight those facets of Gibson's thinking that are pertinent to the two criticisms of radical empiricism just discussed.

James Gibson's ecological approach to visual perception is unique in the perceptual literature in its efforts to provide grounds for direct realism. Gibson offered a framework that, in effect, realizes in the domain of visual perception William James' assertion that the mind engages the object of thought "directly and without any intervening image at all" (1890, 1: 197). The concept offered by Gibson that serves this function, and as we just saw was anticipated in James' writings, is that of the *medium* for perceiving.

We can distinguish between proximal and distal modes of perceiving. Proximal modes include touching and tasting where receptors must make direct contact with 'the perceived' as in the cases of feeling a smooth surface or tasting a bitter liquid. Distal modes allow for detection of environmental features that are located at a distance from the perceiver. In the case of vision, light and sound travel through the different media of air, liquids, and translucent solids, as sensory psychologists have long realized. At issue, however, is *what* is conveyed through such media.

When we turn to writings on visual perception both in philosophy and psychology, the tendency has been to assume that what can be conveyed is rather elementary. In the philosophical literature, the term sense data was frequently employed especially early in the 20th century in this vein; whereas in the psychological literature, sensations continue to be assumed as the initial input for perceptual processes. Notice, however, that both of these terms, and others like them, limit initial inquiry to what is presumed to transpire at the level of sensory receptors. The basis for hypothesizing sense data in the case of vision is the late 19th century discovery of a mosaic of light sensitive receptors on the retinae of the eyes. Sensations in the psychological literature are presumably what receptors produce (through transduction) when stimulated by light.

However, historically neither of these related viewpoints considered whether "data" of a higher-order nature greater than discrete, punctate bits of sensation can be conveyed in the light available to be perceived. This possibility was at the heart of Gibson's first book, *The Perception of the Visual World* (1950), where building on the molar stance previously advanced by the Gestalt psychologists, he offered fresh insights into long-standing problems in the study of visual perception. Gibson demonstrated that vexing problems, such as the perception of distance and relative object size, can be best addressed by considering that higher-order, structural properties of environmental layout are conveyed in sensory stimulation. However, it was not until his later works, *The Senses Considered as Perceptual Systems* (1966), and *The Ecological Approach to Visual Perception* (1979), that Gibson more fully developed these possibili-

ties. In taking the second step, it was necessary for Gibson to *abandon* some inadequately examined, and yet long-standing assumptions in the earlier work, such as that visual experience begins with a display of sensory stimulation on the retinal surface(s) of a passive perceiver.

A cornerstone of Gibson's work on visual perception post-1960 is the medium for vision among terrestrial organisms – what he called “the ambient optic array”. This concept and its implications have been written about at length by Gibson and others, and experimental evidence consistent with the utility of this concept is now abundant (Heft and Richardson 2013). Briefly, the focus here becomes the ways in which light from a radiant source is reflected off of the surfaces of features of the environment. The argument is that reflected light carries structure which bears a relationship to the surface features, and as a result makes direct perception possible. Additionally, it is critical to recognize that perceivers are agents exploring their surrounds, not merely passive spectators.

Two broad types of structure that can be carried in the medium of light and are revealed as a perceiver moves about in the environment are invariant and perspective structure. *Invariant structure* is specific to unchanging features, such as the invariant *relationship* of two adjacent surfaces. In the ambient array of reflected light, an unchanging property such as an object's shape (in the case of a rigid object) could be detected by a moving perceiver. Notably, the invariants specific to an object's shape could also be detected by multiple perceivers from different vantage points within the same region of the environment; and this is because reflected light fills the immediate region of the environment. *Perspective structure* refers to the flow of reflected light from surfaces as the perceiver moves through the environment, and it carries information about self-motion, rate and direction of motion, as well as time to contact with looming surfaces. There is now a vast research literature on these and related perceptual phenomena (see Heft and Richardson 2013).

For our purposes here, the principal point to be made is that the ambient optic array seems to be a realization at the psychological level of analysis of a field of immediate experience in the sense that James was proposing. What is the justification for drawing this parallel? The conceptual framework that Gibson developed serves many of the same ends that James was seeking. One of these was offering a way of explaining how perceiving can be a process of direct perception, in the sense that it is unmediated by a representation (“a counterfeit image”). Moreover, there is a direct historical lineage can that be traced from James' radical empiricism to Gibson's ecological psychology (Heft 2001).

We have seen how James' developing psychological position cannot be adequately appreciated without recognizing the background influence of the idea of a “field of experience”. It has also been argued in this regard that the intel-

lectual context for this conceptualization is the emergence of field theoretical thinking in the sciences broadly. Because psychologists do not tend to view his writings from this perspective, but rather from a Newtonian tradition, they miss the critical contributions that his radical empiricist philosophy can make to psychological theory. It is no wonder then that Gibson's ecological approach to perception is consistently misread and misunderstood, because those same background ideas are at work there.

The second feature of Gibson's perspective to highlight here is the concept of affordances. In order to understand its connections to James, we should remember that for him pre-reflective experience is not originally divided into an objective world – subjective realm, but rather is simply there, as a relatively undifferentiated field of relations. As we saw above, critics charged that if that was the case, then James would appear to leaving out affective qualities that seem so very insistent in immediate experience. In response, James asserted that to the contrary, affective qualities are often present in immediate experience, as can be demonstrated by instances when their relational character (e.g., the object's meaning and value) is particularly apparent. Attributes such as dangerous, threatening, precious, when used to describe entities in the field of experience, seem to cut across this standard objective-subjective divide. In addition to bringing into focus the affective aspects of immediate experience, James' discussion of affectional experiences further clarified his claim about the non-dualistic character of immediate experience.

Still, James' examples of affectional experiences, while striking, are also somewhat limited and rare. He, in fact, labels them as being a certain type of experience, namely, affectional experiences as opposed to other types of experiences. If, however, these instances are special cases, that stance would seem to run against his long-standing claim, going back at least to *The Principles*, that all experience is both cognitive and affective. But in his "affectional facts" essay James seems hard-pressed to do anything more than point to unusual cases (e.g., the man is hateful) to make his point. Is there some way to extend his claim about affectional experiences to a wider range of phenomena?

In my opinion, the seeds of that broader application can be found in his essay "The Experience of Activity" (James 1905b), later included in *Essays in Radical Empiricism* (1912). The origin of this paper was a presidential address to the American Psychological Association in 1904. There he examined the issue of how one is aware of one's own activities. The beginnings of an answer here is as follows: "But in this actual world of ours, as it is given, a part at least of the activity ... comes with resistances which it overcomes or succumbs to and with the efforts which the feeling of resistance provokes ..." (1912: 163). In this regard, he makes reference to "complex activity situations" suggesting that the

actor experiences more than activity as such, but rather activity in some context where resistances would be experienced. It is in engaging the world that activity is most apparent. He writes: “[I]t is impossible for us to conceive of any one of them [i.e., an activity] being lived through or authentically known otherwise than in this dramatic shape of something sustaining a *felt* purpose against *felt* obstacles and overcoming or being overcome” (1912: 168, emphasis added). In a footnote that shortly follows this passage, James anticipates later 20th century writings on embodiment. A portion of this lengthy footnote follows:

The world experienced (otherwise called the ‘field of consciousness’) comes at all times with our body at its centre of interest. Where the body is is ‘here’; when the body acts is ‘now’; what the body touches is ‘this’. ... These words of emphasized position imply a systematization of things with reference to a focus of action and interest which lies in the body. ... The body is the storm-centre, the origin of co-ordinates, the constant piece of stress in all that experience-train. ... Activities attached to ‘this’ position have a prerogative emphasis, and, if activities have feelings, must be felt in a peculiar way (170).

These passages offer a broader basis for experiences that have an affective tone, namely, the experience of the body as it encounters resistances in the world. To take but one example, because the environment is filled with solid surfaces – from those underfoot to those we reach out and grasp – feelings will accompany those engagements with rigid surfaces in each instance; and those feelings arise *within* the transaction between actor and object. We can further develop these points, both with regard to the non-dualistic nature of these encounters and to their affective character when we turn to Gibson’s concept of affordances.

There now exists an extensive literature on the concept of affordances, including both theoretical and empirical work (see, e.g., Chemero 2009; Heft 1989, 2001; Heft and Richardson 2013). Here our consideration must necessarily be brief. An affordance is a feature of the environment that has significance or value *in relation* to the actions of an individual agent. For example, a rock that is small enough to be grasped by the hand and light enough to be lifted affords being utilized as a tool by primates to crack nuts. The affordance “hammerable-with” is a property of the rock (a feature of the environment) within a field of action that includes the agent. The relevant physical properties – e.g., breadth and mass – of the object take on significance in relation to functional possibilities of the user. Specifically, the possibility of a rock being grasped and wielded is established in relation to body-scaling (e.g. breadth of the hand-span) and arm strength of the user. Such a field of action taken relative to an agent is neither objective nor subjective, as we saw above with the James’ concept of pure experience; but it is a pre-reflective possibility in the

life-world; and in the context of an act that would make a food source available, it would be experienced positively. In this regard, Gibson claimed that individuals perceive the environment principally and naively with respect to its affordances. Similar phenomenological claims have been offered by philosophers such as Heidegger and Merleau-Ponty in the middle decades of the 20th century. Gibson's development of this idea comes most directly from the writings of the Gestalt psychologists, although he did have some familiarity with the work of Merleau-Ponty (Heft 2001).

Now more than 50 years since Gibson first proposed it, his concept of affordances finally is drawing interest from some of mainstream psychological and philosophical thought (as for the latter, e.g., Dennett 2017; Dreyfus and Taylor 2015). With this concept Gibson embraces a non-dualistic perspective as James initially advanced by means of pure experience, and then further clarified with James' discussion of affectional experiences. There is no direct evidence that Gibson was familiar with these essays, but his graduate school mentor E.B. Holt was James' student and he embraced radical empiricist thinking (Heft 2001). What is clear is that Gibson knew well a similar idea (*Auffordrungscharakter*) developed by Lewin and adopted by other Gestalt psychologists such as Koffka. The roots of this Gestalt idea here are probably traceable back to James, however, through his influence on Husserl (Asch 1998).

Ecological psychologists are now beginning to consider more fully the affective character of engaging affordances of the environment, and the direction this inquiry may take has been proposed. In an essay on the experience of landscape, I argued that “[o]ften individuals are drawn to certain locales because of the distinctive experiences those places afford. Just as the ‘feel’ of a utensil or tool can be a matter of considerable *value* for users, there can also be a *value in engagement* that makes some settings especially desirable. And *skillful engagement* ... is tied to the unique ‘feel’ of that the specific action” (Heft 2010: 26). More recently, Rietveld and Kiverstein (2014), and Withagen, Araujo, and De Poel (2017) have examined the manner in which some affordances “invite” action (i.e., so-called “inviting affordances”), and the former invoke the idea of a “field of affordances”. These developments show great promise, and they appear to be an elaboration of James' original insights concerning affectional facts in an immediate field of action.

6. Conclusion

Contemporary psychologists typically take William James' work, and particularly *The Principles of Psychology*, as laying the groundwork for the psychol-

ogy that eventually emerges in the 20th century. Based on this reading, James is celebrated as a founder of American psychology. The reality is far more complicated, as we have seen. The meta-theoretical commitments of mainstream American psychology are rooted in a Cartesian divide between the individual and the world, and the related Newtonian conception of the natural world as ultimately fractionated into separable units of analysis. Although James' initial stance in *The Principles* was somewhat equivocal as regards mind-world dualism, there can be no doubt that he rejected in that book the Newtonian-Lockean view that natural phenomena, including mind, are fundamentally composed of discrete units (e.g., ideas). In his writings soon to follow after *The Principles*, James clearly abandoned even a provisional dualism for a conceptualization that bears a striking resemblance to the emerging field theory in physics. I suggest that it is no coincidence that James came to formulate radical empiricism during a period when field theory in physics was gaining prominence.

For the most part, James' vision for a field-oriented psychology was left unexamined until Gibson's development of ecological psychology beginning in the 1960's. While it is true that field theoretical thinking was represented in North America by Gestalt psychologists – indeed, they had a deep influence on Gibson – their writings unlike James' remained disconnected from a Darwinian perspective. For this reason they seemed to stand separate from a Jamesian approach while simultaneously being tied to Kantian lines of thought. In Gibson's work, and that of the generation who followed him, some of James' insights have been concretely expressed in a manner in keeping with more recent developments in science, including dynamical systems thinking (Chemero 2009). Ecological psychology now represents one domain of activity in contemporary psychology where the promise of radical empiricism is being realized. A careful reading of James' proposals for a radical empiricist philosophy will clarify some of the theoretical groundwork for ecological psychology, even as ecological psychology helps to illuminate in retrospect James' vision for psychology.

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