

“CERTAINLY VAGUE”:
WILLIAM JAMES, RADICAL EMPIRICISM, AND THE “COMPLETE
DESCRIPTION” OF MENTAL LIFE

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Since the first publication of *The Principles of Psychology*, readers have troubled over James’s assertion that the task of psychology is to “[ascertain] the empirical correlation of the various sorts of thought or feeling with definite conditions of the brain.” This program for psychology appears to conflict with the general tenor of James’s thought, as well as his particular philosophy of radical empiricism and his actual accomplishments in *Principles*, which might be better summarized by the line “the re-instatement of the vague to its proper place in our mental life.” Looking closely at James’s engagement with cerebral psychology in the opening chapters of *Principles*, I argue both that vagueness operates in concert, not in conflict, with the premise of psychology “as a natural science,” and that that premise is more central to James’s broader intellectual project than scholars have allowed.



Reflecting during her 1934-35 American lecture tour on her development as a writer, Gertrude Stein summarized the influence of her college studies with William James as follows: “When I was working with William James, I completely learned one thing, that science is continuously busy with the complete description of something, with ultimately the complete description of anything with ultimately the complete description of everything.”¹ James’s 1400-page *The Principles of Psychology*, along with many of his subsequent writings, might well be understood as contributions toward “the complete description of everything.” His pages are filled with assiduous descriptions of the subtlest motions of mental life, from notes on his own experiences of light and color to the first-hand accounts of spiritual ecstasy by saints and mystics collected in *The Varieties of Religious Experience*. But there is another, more contentious sense in which *Principles*, in particular, participates in a project of “complete description.” In the preface to *Principles*, James announces his intention to treat psychology “as a natural science.”² As such, its task is to “[ascertain] the empirical correlation of the various sorts of thought or feeling with definite conditions of the brain”—to achieve, that is, a complete description of mental life in terms of the physical body.³

Stein’s comments bring into focus a problem in the interpretation of James. To generations of readers, his program for psychology “as a natural science” has appeared eccentric, if not downright contrary, to the prevailing current of his thought. Indeed, when readers recall the mission of James’s psychology, they often invoke a phrase that seems diametrically opposed to the project of “complete description”: “the re-instatement of the vague to its proper place in our mental life.”⁴ Within *Principles*, he devotes less attention to “definite conditions of the brain” than to feelings so constitutively hazy that to examine them is like “trying to turn up the gas quickly enough to see how the darkness looks.”⁵ Looking beyond *Principles*, scholars have adopted “the vague” as a metonym for an entire range of James’s career-long commitments: to the fluxional quality of psychic life, to the mysteries of religious

experience, to the pragmatic conception of truth continually “in the making,” and to the dissolution, in his philosophy of radical empiricism, of the binary between known object and knowing subject.⁶ All of these commitments seem to suggest an orientation at odds with the “strictly positivistic point of view” announced in the preface to *Principles*.⁷

In this essay, I argue that the hypothesis of “complete description”—that mental life might be exhaustively described in terms of the physical body—plays a more lasting and consequential role in James’s thought than his interpreters have allowed. Far from abandoning that hypothesis in the course of *Principles* and his subsequent writings, James takes pains to preserve it. And far from conflicting with his radical empiricism or his insistence on the primacy of felt experience, including religious experience, James’s preservation of the hypothesis of “complete description” actually strengthens them. To definitively assert that mental and spiritual events are exhaustively conditioned by physical ones would be to espouse “a metaphysics of physics,” as one early reviewer of *Principles* accused James of doing.⁸ But to rigorously maintain that they *might* be is to adhere to the species of empiricism that James labelled “radical.”

In order to demonstrate how James’s science of “complete description” works together with his apparently antithetical psychological and philosophical investments, I must correct a common misunderstanding of what he means by “vagueness.” Some recent discussions of James in literary studies, for instance, leave the impression that vagueness exceeds not only linguistic description, but also material determination. I correct this error, first, by highlighting a crucial difference between James’s thought and that of his admired correspondent, Henri Bergson: whereas Bergson’s vitalism emphasizes the limit of material determination, James’s “vague” marks his refusal to posit such a limit. This function of vagueness abounds in *Principles*—especially in those chapters that adhere most directly to the scientific program enunciated in the preface. Looking closely at “The Scope of Psychology” and “The Functions of the Brain,” I demonstrate that vagueness complicates

without ever contravening the project of obtaining “a complete diagram of the mind’s and the brain’s relations.”⁹ Oftentimes in *Principles*, vagueness attests to the extraordinary complexity of physical processes. This vagueness goes hand in hand with a willful vagueness on questions of ultimate nature: rather than proclaim the universe thoroughly mechanistic or definitively spiritual, James comes to rest on provisional positions that are “vague and elastic enough to receive any number of future discoveries of detail.”¹⁰ In this sense, I argue, the incipient radical empiricism of *Principles* lies not in its departures from the premises of psychology as a natural science, as many have suggested, but in the tenacity with which it hews to them. At the end of the essay, I turn to a further consequence of James’s patience for the positivistic hypothesis. His 1902 treatise *Varieties* is devoted to states of consciousness and belief that both challenge and are challenged by the assumptions of natural science. Even here, however, James upholds those assumptions—and, by doing so, indemnifies religious experience against further attacks from the corner of science.

THE NATURAL-SCIENCE PERSPECTIVE OF *THE PRINCIPLES OF PSYCHOLOGY*

Perhaps no passage in James’s writings has generated so much commentary as the preface to *Principles*, which briefly states the purview and presuppositions of psychology conceived of “as a natural science.” To call psychology a science at all was provocative in 1890, when, Ralph Barton Perry reminds us, “[p]sychology as . . . taught in the United States was indistinguishable from the philosophy of the soul, embracing a brief account of the senses and of association, but devoted mainly to the higher moral and logical processes.”¹¹ From the very beginning, however, controversy over the preface has focused less on James’s dismissal of the soul than on his statement of the assumptions from which the science of psychology must proceed. According to James, the elementary data that psychology assumes are “(1) *thoughts and feelings*, and (2) *a physical world* in time and space with which they coexist and which (3) *they know*.”¹² He continues, “these data themselves are

discussable, but the discussion of them (as of other elements) is called metaphysics and falls outside the province of this book.”¹³ Leaving to philosophy, or perhaps to future science, the question of *how* “thoughts and feelings” relate to the “physical world” in the first place, psychology takes up the task of determining “the empirical correlation of the various sorts of thought or feeling with definite conditions of the brain.”¹⁴

The reason why this passage elicits so much commentary is that it seems so patently inconsistent with James’s views and practices. To many, it bespeaks a reductive materialism of the kind that James denounces elsewhere in his writings. To some experimental psychologists, it is an unfulfilled promise, belied by the introspective approach that he actually takes in *Principles*.¹⁵ Others, like John Dewey, point to the absolute discrepancy between the dualistic assumptions allowed in this passage and James’s anti-dualistic philosophy of radical empiricism.¹⁶ Scholars tend to account for these discrepancies in one of two ways. Some argue that James ultimately repudiated the position that he articulates in the preface to *Principles*, having become convinced in the twelve-year course of writing the book that his initial formulation of the task of psychology was untenable.¹⁷ Others follow Perry in maintaining that the “strictly positivistic” assumptions of *Principles* are methodological, rather than metaphysical, and therefore neither reflect James’s ultimate worldview nor conflict with his other intellectual commitments, like his metaphysics of radical empiricism.¹⁸ My analysis supports the latter interpretation, but I argue that it doesn’t go far enough: it understates both the rigor with which James sustains the positivistic hypothesis throughout his career, and the intimacy of the relationship between the scientific attitude of *Principles* and the more radical dimensions of James’s thought.

I choose the word “hypothesis” carefully, because James was almost maddeningly circumspect on questions that he felt “must some day be more thoroughly thought out.”¹⁹ He felt this way, for example, about the question of exactly how the mind relates to the body, entertaining “parallelistic, epiphenomenalistic, and

interactionistic” explanations in turn.²⁰ James was never quite convinced by the epiphenomenalistic position that held consciousness to be an inefficacious byproduct of events in the physical body.²¹ Nonetheless, there are moments within and beyond *Principles* that nudge the hypothesis of “complete description” toward the status of a theory: for example, in the chapter “The Consciousness of Self,” where he suggests that “*our entire feeling of spiritual activity, or what commonly passes by that name, is really a feeling of bodily activities whose exact nature is by most men overlooked*”—a suggestion that James repeats more assertively in the 1904 essay “Does Consciousness Exist?”—and in his theory of emotion, which holds that “moods, affections, and passions ... are in very truth constituted by, and made up of, those bodily changes which we ordinarily call their expression or consequence.”²² The response to James’s theory of emotion illustrates the way that readers have perceived these “physicalist” positions as outliers within his larger body of work. In his 1929 *A History of Experimental Psychology*, Edwin Boring makes the remarkable claim that “[t]here was only one specific psychological theory of James’ that ever became famous and led to extended discussion and research, and that was his theory of emotion.”²³ Meanwhile, from the opposite end of the philosophical spectrum, Henri Bergson singles out the same theory as the point at which he and James diverge:

We shall not go so far as to maintain, with Professor James, that the emotion of rage is reducible to the sum of these organic sensations: there will always be an irreducible psychic element in anger, if this be only the idea of striking or fighting, of which Darwin speaks, and which gives a common direction to so many diverse movements.²⁴

In this passage from *Time and Free Will*, Bergson presents his disagreement with James as a minor quibble, but in fact, his assertion of an “irreducible psychic element” amounts to a consequential difference, which I elaborate in the following pages.

BERGSON'S VITALISM AND JAMES'S "VAGUE"

James and Bergson are usually thought of—indeed, they thought of themselves—as intellectual allies. The terms of their alliance help to clarify why James's assertion of “a strictly positivistic point of view” strikes so many readers as incongruous. Both men were learned in the natural sciences and deeply influenced by Darwin's theory of evolution, but they publicly and vociferously opposed the interpretation of Darwinism as authorizing a Godless, mechanistic worldview. According to historian T. J. Jackson Lears, James “spent his entire career wrestling with the determinist Minotaur”—a creature who manifested most prominently, at the time, in the figure of Herbert Spencer.²⁵ Bergson, too, forged his philosophy in opposition to Spencer's “pervasive cosmic materialism,” as well as to the French positivist tradition exemplified by “Comte, Taine, and Renan, [who] advanced a thoroughly naturalistic understanding of the universe” and “anticipated the day when the methods of modern science would provide a definitive explanation not only of the physical world, but also of human experience and activity.”²⁶ Sanford Schwartz writes that “Bergson's reaction to Spencer was one expression of a major ‘revolt against positivism’ near the end of the nineteenth century”—a revolt to which James's various researches unquestionably also belonged.²⁷

It is easy to see, in this context, how James's “vague” might be taken as a general figure of resistance to materialism and scientific rationality. The most famous formulation of the Jamesian “vague”—“It is, in short, the re-instatement of the vague to its proper place in our mental life which I am so anxious to press on the attention”—does, in fact, mark the most profound conjunction of James's and Bergson's philosophies.²⁸ That formulation has to be understood, however, in the specific context in which it appears: that of James's criticism of associationist psychology. The model of mind assumed by most psychologists at the end of the nineteenth century was a version of the Lockean doctrine of “simple ideas,” which holds that mental life is composed of discrete and unchanging units of thought that are linked by association and compounded into complex mental states. One of James's major contributions to

modern psychology was his argument that the elementary unit of consciousness is not an atomic idea, but the entire, integral, shifting panorama of thought, which he describes using the metaphor of a river or stream. “[T]he definite images of traditional psychology,” he contends,

form but the very smallest part of our minds as they actually live. The traditional psychology talks like one who should say a river consists of nothing but pailsful, spoonsful, quartpotsful, barrelsful, and other moulded forms of water. Even were the pails and the pots all actually standing in the stream, still between them the free water would continue to flow. It is just this free water of consciousness that psychologists resolutely overlook. Every definite image in the mind is steeped and dyed in the free water that flows round it.²⁹

According to James, the greatest part of our mental lives consists of feelings of tendency, transition, and relation—feelings that are difficult to isolate and name. A discrete sensation may be abstracted from the stream of thought, but *within* the stream, it arrives fused together with “the sense of its relations, near and remote, the dying echo of whence it came to us, the dawning sense of whither it is to lead.”³⁰ Furthermore, that stream is Heraclitean: the same thought cannot recur twice, because each instant of the stream bears the difference of its context, including the accrued difference made by past repetitions. Bergson arrived independently at an identical critique of associationist psychology in *Time and Free Will*.³¹ For both thinkers, this theory of mind extends to a philosophical conviction that nature always exceeds conceptualization: because concepts, by definition, indicate *the same again*, they cannot be applied to nature without leaving a remainder. It is not wrong to think of James’s “vague” as a figure for that remainder: the blurred and transitional states of experience that the structure of conceptual thought conditions us to overlook.³²

This is how James’s “vague” is often understood within literary studies—naturally, given that the argument applies as readily to language as to conceptual thought, and that he relied heavily on

linguistic metaphors to illustrate his conception of “the stream of thought.” Dora Zhang and Megan Quigley situate James’s sense of “the vague” within the matrix of language theories expressed in early-twentieth century philosophy and Modernist fiction. In “Naming the Indescribable: Woolf, Russell, James, and the Limits of Description,” Zhang traces a connection between Virginia Woolf’s experiments with linguistic vagueness and James’s theorization of a mode of direct, particular experience—what he calls “knowledge by acquaintance”—that by definition cannot be verbalized, because words, like concepts, capture only what is shared and generalizable. Zhang’s interpretation of James’s “vague” is consistent with the specific sense of the term as it relates to his refutation of associationist psychology. The trouble arises when “the limits of description” are exported beyond the context of a particular theory of language, and taken more generally to stand for the limits of the knowable or the materially determined.³³ Quigley invites this misunderstanding of James when she invokes a distinction from contemporary language theory between a conception of vagueness as “*epistemic*,” according to which the “boundaries of vague terms are not actually blurry but ‘our failure to detect a sharp transition’ is ‘merely a defect in our knowledge,’” and of vagueness as “*semantic*,” meaning that it “might demonstrate ‘some real indeterminacy in the non-linguistic world itself.’”³⁴ Quigley identifies James’s “vague” as the latter variety, which she sometimes calls “ontological vagueness.”³⁵ And without going so far as to assert that James believed in “some real indeterminacy” on a physical level, she does suggest that this variety of vagueness “dovetails with early twentieth-century discoveries in quantum physics, which ... put both objective observation and the ‘indeterminacy’ of the matter to study under intense scrutiny.”³⁶

The reason why this suggestion is dangerous is that Bergson *does* assert a limit to material determination, whereas James does not. The nub of Bergson’s “revolt against positivism” is the position, shared with other vitalist thinkers, that “[m]anifestations of ‘life’ are not reducible to mechanical explanation.”³⁷ Not only does nature exceed conceptualization, but life—its essential distillation, which

Bergson designates *élan vital*—exceeds its material conditions, in the same way that “the emotion of rage,” in his view, contains “an irreducible psychic element” above and beyond “the sum of [the] organic sensations” that accompany it.³⁸ At first glance, James’s image of “the vague” that slips and pools between the gaps of associationism’s “brickbat plan of construction” bears an awfully close resemblance to a vital principle that “is born in the negative spaces of the machine model of nature, in the ‘gaps’ in the ‘chain of strictly physico-chemical or mechanical events.’”³⁹ But there is a difference between repudiating an overly mechanical model of the mind itself (associationist psychology) and positing gaps in the correlation between (phenomenal) mind and (material) brain. Whereas the latter implies that matter is finite and simple as compared to the novelty and agility of the mind, James’s writings reflect a sense of the extraordinary dynamism of the physical body, as well as a profound awareness of how little science yet understands of its workings. In fact, James cites the unrepeatability of physical brain states *as a reason* for the unrepeatability of mental states:

For an identical sensation to recur it would have to occur the second time *in an unmodified brain*. But as this, strictly speaking, is a physiological impossibility, so is an unmodified feeling an impossibility; for to every brain-modification, however small, must correspond a change of equal amount in the feeling which the brain subserves.⁴⁰

For James, the complexity of the material keeps exact pace with the complexity of the mental. I will return to this difference between James and Bergson later in the essay when I address James’s treatment of the ability of brain tissues to regenerate after an injury—a phenomenon that is also an important reference point for Bergson’s vitalism.

In light of this comparison between James and Bergson, I propose to emend Quigley’s characterization of the Jamesian “vague.” Quigley defines James’s attitude toward vagueness in opposition to that of C. S. Peirce, who held that vague language is useful in a pragmatic sense, but that the reality that it aims to

describe is definite and clear, and so the ultimate goal of philosophy is “to refine vagueness out of existence.”⁴¹ In contrast to this epistemic position, Quigley argues that both William James and his brother Henry, in his novels, depict a world that is itself irreducibly vague. I propose, to the contrary, that James’s vagueness is not exactly “epistemic” or “semantic.” Instead, one of its primary functions is to forestall any claims at all about ultimate clarity or indeterminacy. Sometimes, James describes as “vague” phenomena that he expects science to eventually describe more precisely, and sometimes he uses vagueness to “[soften] down” the pictures that scientists have drawn with premature precision.⁴² But in all of these cases, vagueness marks James’s reluctance to overstep the empirical evidence in either direction, either by proclaiming that an instance of vagueness within the empirical field is merely an imperfect view of a definite reality, or, to the contrary, that no amount of investigation will resolve it into clarity.

VAGUENESS IN *THE PRINCIPLES OF PSYCHOLOGY*

Along with the functions and phenomena of mental life, *Principles* inventories multiple varieties of vagueness. There is the ontological vagueness of conscious experience itself, which James describes using images of “fringe” and “penumbra” as well as the liquid language of the “stream,” and the epistemic vagueness of a science in its infancy, as yet possessed of only the sketchiest knowledge of neural and cerebral processes.⁴³ The book also endorses a salutary methodological vagueness, most explicitly in chapter one, “The Scope of Psychology.” The first sentence of the chapter is straightforward—“Psychology is the Science of Mental Life, both of its phenomena and their conditions”—but the second is almost ostentatiously vague: “The phenomena are such things as we call feelings, desires, cognitions, reasonings, decisions, and the like.”⁴⁴ James is perfectly definite that these phenomena *are* the subjects of psychology, but his list enacts both the indefiniteness of the boundaries on either side of the subject (“such things,” “and the like”) and the inevitably confusing interaction between the experience of mental life and the conventions of language (“such

things *as we call feelings*,” etc.). The “conditions,” similarly, are easy to identify, but it is difficult to decide where the relevant conditioning ends or begins. “[T]he brain is the one immediate bodily condition of the mental operations,” and therefore “a certain amount of brain-physiology must be presupposed or included in Psychology,” but “[i]n still another way, the psychologist is forced to be something of a nerve-physiologist,” because the brain events upon which mental life depends depend themselves on communications from the extended nervous system.⁴⁵ Midway through the chapter, James makes a memorable assertion: “The boundary-line of the mental is certainly vague.”⁴⁶

“The boundary-line of the mental” is vague because the life of the mind is not distinctly divisible from the life of the body, but also because mentality is a pragmatic designation for a range of related phenomena, rather than a clearly identifiable phenomenon itself. As James attempts to specify the scope of his science, he subjects mentality to a kind of Wittgensteinian interrogation that yields no one property common to “feelings, desires, cognitions, reasonings, decisions, and the like,” but rather a set of family resemblances.⁴⁷ The concept of “Mental Life,” then, is “certainly vague,” as opposed to vaguely certain: it can be more sharply refined, but only in relation to a specific purpose or context. For the purpose at hand, James settles on “[t]he pursuance of future ends and the choice of means for their attainment” as a workable “*mark and criterion of the presence of mentality*.”⁴⁸ Workable, but not perfect; it forces him, for instance, to accept as “intelligent” the actions of a decapitated frog.⁴⁹ But James defends his adoption of provisional definitions, writing,

[i]t is better not to be pedantic, but to let the science be as vague as its subject, and include such phenomena ... if by so doing we can throw any light on the main business in hand. It will ere long be seen, I trust, that we can; and that we gain much more by a broad than by a narrow conception of our subject.⁵⁰

The ultimate goal of psychology as a natural science will be precise and definite knowledge about the phenomena and conditions of mental life, but at this early stage, “a degree of vagueness is what best consists with fertility.”⁵¹

The pragmatic vagueness that James recommends in “The Scope of Psychology” should not be mistaken for a rebuke to scientific precision. To the contrary, it creates the context within which the work of psychology as a natural science can begin. That work begins in earnest in chapter two, “The Functions of the Brain.” In other chapters, James draws heavily on data derived from introspection and the experiences of clinicians, but the empiricism of “The Functions of the Brain” is that of the laboratory. Most of the chapter is devoted to the specific branch of experimental inquiry known as cerebral localization. Advocates of cerebral localization viewed the cerebral cortex as “the surface of projection for every muscle and every sensitive point of the body.”⁵² Each of “the various elementary sorts of idea”—the “elementary sorts” presumed to be motor and sensory ideas—is represented by a particular region of the brain, and the researcher’s task is to determine, via techniques such as cortical irritation, targeted excision, and the examination of pathological lesions, which regions correspond to which ideas.⁵³ James calls “the *localization-question*” “the most stirring controversy in nerve-physiology which the present generation has seen” and treats it with his typical circumspection, entertaining a range of alternatives, criticisms, and qualifications.⁵⁴ He ultimately concludes, however, that it “is on the whole most satisfactorily corroborated by ... objective research.”⁵⁵

“Cerebral localization” refers specifically to the correspondence between “motor and sensory ideas” and points or regions of the cerebral cortex. But in a looser sense, “localization” describes the entire project of psychology as a natural science: that is, correlating the phenomena of mind to events that can be located in space and described in material terms. James’s assertion in chapter one “that the brain is the one immediate bodily condition of the mental operations” is an example of localization in its broadest sense.⁵⁶ In chapter two, he introduces the schematic division of the central

nervous system proposed by Austrian neuroanatomist Theodor Meynert. James will propose major corrections to “the Meynert scheme,” but accepts as a rough sketch Meynert’s attribution of automatic functions to the lower centers of the central nervous system and spontaneous and intellectual functions to the hemispheres of the brain. One might say that “localization” proceeds from the broadest correlation between a mental life and a central nervous system, to the general connection between hearing and the temporal lobe, to links as specific as that between auditory aphasia and lesions “limited to the first and second temporal convolutions in their posterior two thirds.”⁵⁷

James prefaces his discussion of cerebral localization with a brief section on phrenology. He presents phrenology as a discredited discipline, and its place in the chapter is largely historical. Still, its inclusion hints at a continuity between the phrenologist’s desire to find visible organs of invisible faculties and the psychologist’s project of assigning the various mental functions to particular regions of the hemispheres. Both phrenology and cerebral localization follow a logic of representation—the mind represented in the body—which in turn invites representation in the spatial form of a table or diagram.⁵⁸ James gives special emphasis to this representative logic—“[t]he muscles and the sensitive points are *represented* each by a cortical point, and the brain is nothing but the sum of all these cortical points, to which, on the mental side, as many ideas correspond”—and even pokes fun at the “diagram of little dots, circles, or triangles joined by lines” by which “Modern Science” “symbolizes ... the cerebral and mental processes.”⁵⁹ But in the case of cerebral processes, at least, he accepts that tabular logic, which the structure of the chapter goes on to exemplify. James classifies brain activity into motor and sensory functions and considers the five senses in turn, each accompanied by diagrams highlighting the most relevant regions of the brain. For each function, he proceeds through a taxonomy of experimental subjects, ranked from the least to the most developed nervous system: frog, pigeon, dog, monkey, human. Implicit in the structuring principle of the table is the imperative to complete it. And while James will

propose major complications of the diagrams drawn by contemporary physiologists, he accepts that completion is theoretically possible: "If ... we grant that motor and sensory ideas variously associated are the materials of the mind," James writes, "all we need do to get a complete diagram of the mind's and the brain's relations should be to ascertain which sensory idea corresponds to which sensational surface of projection, and which motor idea to which muscular surface of projection."⁶⁰

If anything threatens to undermine the possibility of the "complete diagram," it is the fact that it fails to include any of the phenomena that James names as most central to mental life: "desires, cognitions, reasonings, decisions, and the like."⁶¹ In "The Functions of the Brain," no brain regions corresponding to these types of feelings are ever proposed, beyond Meynert's vague attribution of higher functions to the hemispheres. Rather than proving fatal to the paradigm of cerebral localization, however, this omission highlights the lack of fundamental discord between that paradigm and James's views. The neuroanatomists and physiologists, he explains, had inherited their understanding of mind from associationist psychology, which holds that complex mental states are merely compounds of simple ones. To the associationist, "[i]deas of sensation, ideas of motion, are ... the elementary factors out of which the mind is built up."⁶² Surprisingly, although James thoroughly repudiates the associationists' conception of mind, his theory of emotions comports with their conception of brain. In the chapter on "The Emotions," James considers whether there are "special brain-centres for emotion" and concludes that there are not.⁶³ His reason for this conclusion is not that the emotions belong to an immaterial, unlocalizable stratum of mental life, but that he defines emotions as the apprehension in experience of certain constellations of physiological response. Rather than being activated by a fear-specific region of the brain, in James's view, the feeling of fear correlates to the activation of a particular pattern of motor and sensory centers corresponding to a rapid heartbeat, constricted blood vessels, shivering muscles, etc. Instead of seeking opportunities to combat the thorough physiologism that holds every pulse of mental

activity to correlate to a bodily change, James demonstrates that his own views are compatible with that perspective. The impression gained from reading the page after page of experimental results that James presents in “The Functions of the Brain” is that *all* of mental life is ultimately mappable, and that science is indeed progressing towards “a complete diagram of the mind’s and the brain’s relations.”⁶⁴

In other words, the complications of that proposition that arise in the chapter ultimately testify to its strength. While experimental findings are filling in points on the “complete diagram,” other findings threaten to erode the strictures of one-to-one correspondence between region and function. A precise view of the brain-regions themselves, James reports, reveals vaguer boundaries than some physiologists had been willing to see, while some functions correspond to cerebral activities more holistic than uniquely local. “Munk’s way of mapping out the cortex into absolute areas within which only one movement or sensation is represented is surely false,” James writes:

The truth seems to be rather that, although there is a correspondence of certain regions of the brain to certain regions of the body, yet the several *parts* within each bodily region are represented throughout the *whole* of the corresponding brain-region like pepper and salt sprinkled from the same caster.... The various brain-regions merge into each other in the same mixed way. As Mr. Horsley says: “There are border centres, and the area of representation of the face merges into that for the representation of the upper limb. If there was a focal lesion at that point, you would have the movements of these two parts starting together.”⁶⁵

The language of “merging” and “mixing” proliferates in the passage in a way that seems counterproductive to work of localization, which, in theory, ought to progress toward greater isolation and precision. For James, however, this is the language that scientific precision in fact requires. Vagueness emerges in this passage within the empirical field and through the experimental method, rather than as a pressure on empirical science from without. It is scientific

evidence, carefully considered, that leads him to replace an atomistic diagram of the cortex with a more holistic conception (“throughout the *whole* of the corresponding brain-region”). Likewise, James’s simile of “pepper and salt sprinkled from the same caster” is motivated by an effort to accurately represent what the evidence reveals. While the image suggests both a figurative license and a quality of disorder less proper to science than the discrete regions drawn by Hermann Munk, James’s text furnishes a subtle reminder that Munk’s map is itself, of course, a figure.

The boundaries of brain regions are not only vague, but also elastic. James devotes one section of “The Functions of the Brain” to the “restitution of function” after injury, studied primarily in dogs subjected to a series of neural cuts and excisions.⁶⁶ He advances two possible explanations for the recovery of brain function. One is the eventual “passing off of inhibitions” temporarily effected by the trauma of injury; the other is “the formation of entirely new paths in the remaining centres, by which they become ‘educated’ to duties which they did not originally possess.”⁶⁷ In the former case, injured pathways resume their former function after a period of time. In the latter, their function is transferred to vicarious centers, suggesting that the brain has qualities of spontaneity and plasticity that challenge the tabular logic of the “complete diagram.”

The ability of living tissues to adopt new functions in response to injury features in Bergson’s *Creative Evolution* as one piece of evidence for the existence of a life force that transcends mechanical behavior and defies the ateleological mechanism of Darwinian biology. Bergson marvels at the fact that different parts of a salamander’s eye are equally capable of regenerating the same injured tissue:

If the crystalline lens of a Triton be removed, it is regenerated by the iris. Now, the original lens was built out of the ectoderm, while the iris is of mesodermic origin. What is more, in the *Salamandra maculata*, if the lens be removed and the iris left, the regeneration of the lens takes place at the upper part of the iris; but if this upper part of the iris itself be taken away, the regeneration takes place in the inner or retinal layer of the remaining region.⁶⁸

“Whether we will or no,” Bergson concludes, “we must appeal to some inner directing principle in order to account for this convergence of effects.”⁶⁹ The essence of that vital principle, Bergson argues, is “to insert some *indetermination* into matter. Indeterminate, *i.e.* unforeseeable, are the forms [that life] creates in the course of its evolution.”⁷⁰ Indeterminacy, in other words, is the engine of novelty at both the phylogenetic and ontogenetic levels, allowing matter to evolve and develop in ways at once teleological and unpredictable.

James uses language identical to Bergson’s to describe how the instability of a highly developed nervous system like a human’s allows its possessor to act in unpredictable and minutely responsive ways: “The cerebral hemispheres are the characteristically ‘high’ nerve-centres, and we saw how indeterminate and unforeseeable their performances were in comparison with those of the basal ganglia and the cord.”⁷¹ “[T]his very vagueness,” James explains, “constitutes their advantage. They allow their possessor to adapt his conduct to the minutest alterations in the environing circumstances, any one of which may be for him a sign, suggesting distant motives more powerful than any present solicitations of sense.”⁷² There is a key difference, however, between what Bergson intends by the words “indeterminate” and “unforeseeable” and what James intends by them. As the passage continues, James replaces “indeterminate” with “accidental”:

An organ swayed by slight impressions is an organ whose natural state is one of unstable equilibrium.... [W]hat discharge a given small impression will produce may be called *accidental*, in the sense in which we say it is a matter of accident whether a rain-drop falling on a mountain ridge descend the eastern or the western slope. It is in this sense that we may call it a matter of accident whether a child be a boy or a girl. The ovum is so unstable a body that certain causes too minute for our apprehension may at a certain moment tip it one way or the other.⁷³

“Indeterminate,” for James, does not mean *in excess of* determining causes; it means determined by “causes too minute for our

apprehension.” Whereas Bergson posits a gap between determining causes and determined effects, James is too impressed by the numerousness and subtlety of material influences to claim to see their limit. For a writer whose sense of the material is as vibrant as James’s—who offers as a metaphor for the physical brain an “aurora borealis [whose] whole internal equilibrium shifts with every pulse of change”—there is little impetus to “insert some *indetermination* into matter.”⁷⁴ Its complexity alone is enough to account for the unforeseeable.

Concomitant to matter’s complexity, too, is James’s refusal to make final claims about what lies beyond the limits of his knowledge. I have argued that his science subscribes to a spatial logic exemplified by the “complete diagram of the mind’s and the brain’s relations.” But James also instills a sense that the diagram exists *in process*, and that the limits of “our apprehension” are constantly changing. “[C]auses too minute” for detection by current instruments may, or may not, be detectable by the instruments of the future. Here he differs from both the vitalists and the reckless materialists whose penchant, Eugene Taylor writes, was “to treat the world and everything in it as objects, all knowable and under the control of the rational mind.”⁷⁵ James’s version of the “strictly positivistic point of view,” in contrast, is an empiricism too unwavering to draw positive conclusions about the extent of the knowable. His circumspect conclusion to the discussion of the restitution of brain function is that “both the vicarious theory and the inhibition theory are true in their measure. But as for determining that measure, or saying which centres are vicarious, and to what extent they can learn new tricks, that is impossible at present.”⁷⁶ “Impossible at present” is a position James regularly stakes out, owing to his refusal to totalize either determinability or indeterminability.

There is one further point to make about James’s discussion of restitution. He often translates the vagueness that arises within the empirical field, signaling the intricacy of matter and the incompleteness of scientific understanding, into a deliberate vagueness in his own formulations. The open-endedness of James’s

conclusion that both “both the vicarious theory and the inhibition theory are true in their measure” is like that of our highly developed, unstable nervous systems, in that its vagueness constitutes its advantage, allowing it to adapt to a constantly developing body of research and understanding. In “The Functions of the Brain,” he matches the blurred outlines of brain regions by blurring the distinctions proposed by his colleagues in the sciences. James applies this blurring most prominently to the “Meynert scheme,” which held that automatic functions are carried out by the spinal cord and the lower centers of the brain, while the hemispheres are responsible for intelligent thought. “This sharp conception will have didactic advantages,” James writes, but ultimately it “will have to be softened down somewhat by the results of more careful experimentation both on frogs and birds, and by those of the most recent observations on dogs, monkeys, and man.”⁷⁷ Returning to the scheme at the end of the chapter, he concludes, “Wider and completer observations show us both that the lower centres are more spontaneous, and that the hemispheres are more automatic, than the Meynert scheme allows.”⁷⁸ Once again, the blurring of distinctions is yielded *by* the scientific method—by “wider and completer observations” and “more careful experimentation”—and not against it. In his modification of the Meynert scheme, James is able to balance “pepper and salt” holism with the atomistic mode of cerebral localization because he sees neither of them as absolute: as James will later write of his philosophy of radical empiricism, his approach “is fair to both the unity and the disconnection. It finds no reason for treating either as illusory.”⁷⁹ Radical empiricism is the attitude that allows him to assert without contradiction that “[t]he entire brain, more or less, is at work in a man who uses language” and at the same time to point to “[t]he subjoined diagram, from Ross,” that “shows the four parts most critically concerned.”⁸⁰

CONCLUSION: FROM *PRINCIPLES* TO *VARIETIES*

As we have seen, James refrains from making claims about the limits of the knowable, the calculable, or the materially conditioned. There are instances in his writings, like his theory of emotion, that

tend, to paraphrase the title of Dewey's famous assessment of James's psychology, to make the subject vanish—that is, that conduce toward the metaphysical postulation of unlimited material determination. At other moments, when James steps outside the bounds of science, he leans toward a spiritualist metaphysics, going so far in *Principles* as to confess his preference for the hypothesis of “some sort of an *anima mundi* thinking in all of us”—a hypothesis he will repeat at the conclusion of his Gifford Lectures.⁸¹ There, he suggests that what we know *from within* as our individual conscious life may be continuous, through the doorway of the subconscious, with a wider, transpersonal consciousness. This hypothesis, he insists, is no less consistent with the existing empirical data than a mechanistic theory in which consciousness is both epiphenomenal and entirely contained within individual minds.

The mark of the strength of James's empiricist commitment, however, is that he allows nothing to rest on this hypothesis. *Varieties* is first and foremost a descriptive book. (James Edie has called it James's “great attempt at ... a true phenomenology” *avant la lettre*.⁸²) But it is also, if not an implicit argument for the value and validity of religious experience, an explicit defense of the *possibility* of its value and validity against any attitude that denies it on a rational or intellectual basis. The most pressing assault of this kind comes from the attitude James calls “medical materialism.” “Medical materialism,” he writes, “finishes up Saint Paul by calling his vision on the road to Damascus a discharging lesion of the occipital cortex, he being an epileptic. It snuffs out Saint Teresa as an hysteric, Saint Francis of Assisi as an hereditary degenerate,” and so on.⁸³ In response to this argument, James might have been tempted to introduce his theory that religious feelings flow into the mind from a region of transmarginal consciousness, and are therefore incorporeal in origin, independent of material determination. Instead, he returns to the central postulate of *Principles*: “Modern psychology, finding definite psycho-physical connections to hold good, assumes as a convenient hypothesis that the dependence of mental states upon bodily conditions must be thoroughgoing and complete.”⁸⁴ If this is the case, James contends,

then *every* feeling is corporeally grounded. The organic conditions of St. Paul's visions have no bearing on their spiritual authenticity because *all* thoughts and feelings flow from organic conditions, and it would be absurd to think that we know which of those conditions are the most favorable for "truths to germinate and sprout in."⁸⁵

Claiming not to judge religious experience but only to clear away prejudices so that his addressees might judge for themselves, James creates the conditions for a more radical defense of religious experience than one that locates its value, as Bergson locates the special character of life, in an element that escapes material determination. Whatever his own suspicions as to the limits of psychology's psycho-physical hypothesis, James has seen that for the vast majority of experience, it holds good, and his empiricism is too robust for him to discount the possibility that it holds indefinitely—that mental life might someday be mapped in its entirety. Because James takes seriously the possibility that science could theoretically, given enough time and more sensitive instruments, trace every nuance of St. Paul's revelations to the firing of a particular disordered neuron, he is driven to defend St. Paul's experience not on the grounds of an element that escapes the map, but on grounds of what the map might contain—which is to say, on grounds apart from the map altogether.

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NOTES

- ¹ Stein, "Gradual Making," 283.
- ² James, *Principles*, 1:vi.
- ³ James, 1:vi.
- ⁴ James, 1:254.
- ⁵ James, 1:244.
- ⁶ See, for example, Gavin, *William James*.
- ⁷ James, *Principles*, 1:vi.

⁸ Ladd, "Psychology as So-Called," 29.

⁹ James, *Principles*, 1:30.

¹⁰ James, 1:78.

¹¹ Perry, *Thought and Character*, 2:12.

¹² James, *Principles*, 1:v.

¹³ James, 1:vi.

¹⁴ James, 1:vi.

¹⁵ On the reception of *Principles* by experimental psychologists, see Taylor, "Demise of Positivism."

¹⁶ Dewey, "The Vanishing Subject."

¹⁷ See Dewey, "The Vanishing Subject." David Lamberth advances a more extended version of this argument in *Metaphysics of Experience*.

¹⁸ See Perry, *Thought and Character*, 2:72. Ignas Skrupskelis lays out a convincing argument for this position: see Skrupskelis, "James's Conception of Psychology."

¹⁹ James, *Principles*, 1:182.

²⁰ Allport, "Introduction," xx.

²¹ Indeed, the way that James frames his objection to the epiphenomenal theory lends strength to the argument of this essay. He bases his objection not on an *a priori* attachment to the freedom of the will but on empirical evidence and evolutionary logic, arguing that a theory of consciousness as causally efficacious comports better with both (James, *Principles*, 1:138–44).

²² James, *Principles*, 1:301–02; 2:452.

²³ Boring, *History of Experimental Psychology*, 502.

²⁴ Bergson, *Time and Free Will*, 29.

²⁵ Lears, *No Place of Grace*, 5, 39.

²⁶ Quirk, *Bergson and American Culture*, 17; Schwartz, "Politics of Vitalism," 279.

²⁷ Schwartz, "Politics of Vitalism," 280. For the relationship of James's fascination with occult experiences to Bergson's rejection of positivism, see Jones, *Racial Discourses*, 73.

²⁸ James, *Principles*, 1:254.

²⁹ James, 1:255.

³⁰ James, 1:255.

³¹ See Bergson, *Time and Free Will*, 155–65.

³² At the same time, for James, no aspect of nature is *essentially* unconceptualizable; rather, the remainder changes according to the concept being applied. A piece of paper, for example, is alternately “a combustible, a writing surface, a thin thing, a hydrocarbonaceous thing, a thing eight inches one way and ten another, a thing just one furlong east of a certain stone in my neighbor’s field, an American thing, etc., etc., *ad infinitum*. Whichever one of these aspects of its being I temporarily class it under, makes me unjust to the other aspects. But as I always am classing it under one aspect or another, I am always unjust, always partial, always exclusive” (James, *Principles*, 2:333). The existence of a remainder is a function of James’s relational ontology: there is no one perspective from which *all* that an object is can be grasped, and by the same token, the object *is* all that it is in the context of each of its virtually infinite relationships. This aspect of James’s philosophy—already laid out here in *Principles*—helps to clarify how he complicates the positivistic presumption of complete knowability without asserting its opposite, a positive unknowability.

³³ See Zhang, “Naming the Indescribable.”

³⁴ Quigley, *Modernist Fiction and Vagueness*, 18–19.

³⁵ For example, Quigley, 73, 88, 100.

³⁶ Quigley, 19.

³⁷ Schwartz, “Politics of Vitalism,” 281.

³⁸ It can and should be debated whether Bergson’s vitalism can subsist within a thoroughly materialist framework, or whether it necessarily entails a dualistic distinction between matter and something beyond it. Milič Čapek makes the exact argument that Quigley suggests, but about Bergson, not James: that his philosophy “dovetails with early twentieth-century discoveries in quantum physics” regarding indeterminacy on a microphysical level. (Quigley, *Modernist Fiction and Vagueness*, 19) From this perspective, the indeterminacy that Bergson emphasizes is part of the fabric of the material universe itself (Čapek, “Microphysical Indeterminacy and Freedom,” 286–87). Jane Bennett, in *Vibrant Matter: A Political Ecology of Things*, turns to Bergson and his vitalist contemporary Hans Driesch in her attempt to articulate a mode of materialism that does justice to the dynamism and agency of matter. She acknowledges the difficulty of enlisting Bergson and Driesch as materialists, however, conceding that they themselves “could not imagine

a *materialism* adequate to the vitality they discerned in natural processes” (Bennett, *Vibrant Matter*, 63). Whether or not it is possible to reconcile Bergson’s vitalism with a thoroughgoing materialism, my analysis suggests that James comes a good deal closer to the species of materialism that Bennett imagines.

³⁹ James, *Principles*, 1:196 ; Bennett, *Vibrant Matter*, 70.

⁴⁰ James, *Principles*, 1:232–3.

⁴¹ Quigley, *Modernist Fiction and Vagueness*, 16.

⁴² James, *Principles*, 1:15.

⁴³ James, 1:245–6.

⁴⁴ James, 1:1.

⁴⁵ James, 1:4–5.

⁴⁶ James, 1:6.

⁴⁷ Goodman, *Wittgenstein and William James*, 53. Wittgenstein’s concept of “family resemblance” may itself derive from his reading of James’s *Varieties*, while *Principles* “was an intellectual companion for Wittgenstein”—a book that he grappled with both directly and indirectly in his writings over decades (Goodman, 61).

⁴⁸ James, *Principles*, 1:8.

⁴⁹ James, 1:9.

⁵⁰ James, 1:6.

⁵¹ James, 1:6.

⁵² James, 1:30.

⁵³ James, 1:30.

⁵⁴ James, 1:4.

⁵⁵ James, 1:64.

⁵⁶ James, 1:4.

⁵⁷ James, 1:54.

⁵⁸ My claim here echoes Steven Meyer’s discussion of James’s influence on Gertrude Stein’s graduate work in neuroanatomy. Meyer, however, sees the spatial emphasis of James’s science as a limitation. He argues that because Stein’s neuroanatomical sketches incorporate the temporal dimension of *development*, they point the way toward the twentieth century’s more processual understanding of science. I complicate this characterization of James’s science below, where I suggest that his conception of the “complete diagram” does incorporate an understanding of process—not in terms of embryological development,

but in terms of the shifting boundaries of knowledge. See Meyer, *Irresistible Dictation*, 83–99; 111–13.

⁵⁹ James, *Principles*, 1:30.

⁶⁰ In fact, James does not “grant that motor and sensory ideas variously associated are the materials of the mind,” but he gets around the problem without departing from materialist terms by maintaining that *whole mental states* correlate with *whole brain states*: “Our own formula escapes the unintelligibility of psychic atoms by *taking the entire thought* (even of a complex object) *as the minimum with which it deals on the mental side*” (James, *Principles*, 1:177).

⁶¹ James, 1:1.

⁶² James, 1:30.

⁶³ James, 2:472.

⁶⁴ James, 1:30.

⁶⁵ James, 1:64.

⁶⁶ James, 1:67–72.

⁶⁷ James, 1:67.

⁶⁸ Bergson, *Creative Evolution*, 75.

⁶⁹ Bergson, 76.

⁷⁰ Bergson, 126.

⁷¹ James, *Principles*, 1:139.

⁷² James, 1:139.

⁷³ James, 1:139. Emphasis in original.

⁷⁴ James, *Principles*, 1:234.

⁷⁵ Taylor, *Consciousness Beyond the Margin*, 112.

⁷⁶ James, *Principles*, 1:72.

⁷⁷ James, 1:14–5.

⁷⁸ James, 1:72.

⁷⁹ James, *Essays in Radical Empiricism*, 47.

⁸⁰ James, *Principles*, 1:56.

⁸¹ James, 1:346; James, *Varieties*, 508–518.

⁸² Edie, *William James and Phenomenology*, viii.

⁸³ James, *Varieties*, 13.

⁸⁴ James, 13.

⁸⁵ James, 15.