Fundamental Grounding

Patrick Thaddeus Jackson

Quantum Mind and Social Science: Unifying Physical and Social Ontology. By Alexander Wendt. New York: Cambridge University Press, 2015. 368p. $89.99 cloth, $34.99 paper.

On the second page of *Quantum Mind and Social Science*, Alexander Wendt issues an apology for having written a book that "is all philosophy" and is addressed "to all social scientists," rather than one that works through philosophical issues in order to draw implications for the study of international affairs in particular. Right from the outset, this is an unusual book, not at all the typical fare in international studies, political science, or any of the social sciences. Wendt has produced something that is not a substantive account of a particular phenomenon or event in the social or international world, or even an account of a category of such phenomena or events; it is also not a methodology book, since its aim is not to tell us something about how we should study the social world. Rather, the concern here is with *fundamental ontology*, with basic questions about consciousness and perception that are far removed from the everyday concerns of practicing social scientists. But Wendt's wager, so to speak, is that these issues of fundamental ontology have important implications for how we practice social science, and so we *should* be thinking more about them than we do. This book is intended less to set a specific research or scholarly agenda than it is to get something onto all of our agendas.

We should not be surprised. Wendt's first book, *Social Theory of International Politics* (1999), winner of the International Studies Association's Best Book of the Decade award and one of the most cited works in all of contemporary international studies, was similarly concerned with fundamental ontology—although in that case, the ontology in question dealt with the relationship between the scientific knower and the known world, rather than with the character of objects in the world. His commitment to a realist theory of science led him to argue in favor of a "rump materialist" approach to social life, an account of the international system based in the essential dispositional characteristics of states, and a view of culture that emphasized patterns of interaction rather than systems of signification. What Wendt wanted to get on the agenda then was a realist philosophical ontology, which, he argued, would enable international studies to get past endless controversies about epistemology and methodology; and while those controversies have not exactly vanished, the current discussion is a great deal more conceptually sophisticated, due in no small part to his work and the reactions to it.

What Wendt wants to get on the agenda now is the problem of *consciousness*. Consciousness, which he further defines as "the simple experience of a subjective point of view" (p. 15), is in his account entwined in and presupposed by intentional phenomena of all kinds, including most centrally the very notion of "purposive action" that animates even the most structural of social theories. "By attributing intentionality to human beings"—which we do whenever we refer to someone as acting with a reason or a goal in mind—"social scientists are also attributing to them consciousness," he suggests (p. 20). This would not be a problem except for the fact that it is difficult, if not impossible, to reconcile consciousness with the mechanistic, materialistic approach of classical physics, because if the world is made exclusively of material "stuff," both consciousness and intentionality appear superfluous. If the mind is simply and strictly reducible to physical states of the brain, it follows that a human being is in a profound sense an automaton—"a machine or a zombie"—lacking free will, behaving in ways that are determined by physical causes, unable to exercise meaningful agency (pp. 152–53). If there is some way to account for subjective experience in purely material terms, that hard problem is nowhere near solution. Within classical physics, therefore, the status of consciousness is precarious at best, and illusory at worst.

None of this would be a problem for social scientists except that, Wendt suggests, all of us at least tacitly accord a fundamental priority to physics in our investigations, inasmuch as none of us claim "that social

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phenomena can *violate* the laws of physics" (p. 10), and none of us bring "supernatural forces . . . such as God or ghosts" into our social-scientific theories (p. 27). So the problem is that we accept the authority of physics to tell us about the outer limits of what there is in the world, but we simultaneously construct theories that depend on notions of consciousness and intentionality, which classical physics appears to rule out. Our choices, Wendt claims, are to reject physics, to reject consciousness, or—his preferred third option—to explore a *nonclassical* or quantum physics to see if that provides a way to retain both the priority of physics and the phenomenon of consciousness. That is what he sets out to do in the book: to illustrate that a quantum physics resolves this problem, at least potentially, and thus allows social science to continue to theorize about conscious human beings without abandoning the physical world (or physics) altogether.

The key move Wendt makes in building his case is to focus on the *ontological* implications of quantum mechanics: what the realization of a fundamental discontinuity in nature means for our substantive theories about what worldly objects *are*. Classical physics gave us a world in which every object imaginable, whatever its size or composition, had well-defined physical attributes like position and momentum, and determining the values of those variable quantities was just a matter of using the right measuring equipment. But quantum physics gives us a world in which there are fundamental constraints on measurement beyond a certain degree of precision (usually expressed as the Planck constant h, which was introduced by the physicist Max Planck in 1900 as a way to account for otherwise-inexplicable but experimentally verifiable patterns of radiation), not because of any limitation of human observers but because beyond a certain point, physical quantities are simply *not well defined*.

Wendt clearly and lucidly sketches some of the more surprising findings in physics that led to this quantum revolution, such as the way that an experimental setup influences physical outcomes in the famous "two-slit experiment": whether light behaves as a wave or as a particle depends on whether the experiment *treats* light as a wave or as a particle, and which quantities the experiment is set up to measure. "Measurement is somehow intrinsically connected to a change in our description" of the object being measured (p. 46), and this is an ontological problem because all attempts to dissolve this "creative" aspect of measurement by introducing other variables that would conclusively determine the value measured independent of our measuring of it have failed. The quantum world, then, is in some fundamental way *indeterminate* until experimentally pressed to give a determinate answer, and that answer is inseparable from the experimental setup.

One immediate challenge here is that h, the Planck constant, is extremely small even by subatomic standards, being thus many orders of magnitude below what human beings can detect with their unaided senses. Thus, even though "*all* matter-energy can behave like both waves and particles" under the appropriate experimental conditions, the effect of this duality is "negligible" when we are dealing with ordinary objects that are much larger than the Planck constant (p. 45). But this does not mean that we somehow live in a classical world that turns quantum at smaller scales and higher resolutions; it just means that because of the "decoherence" of quantum entanglement at larger scales, we can ignore quantum effects for all practical purposes unless we are dealing with special phenomena or situations. This is an important and subtle point.

One of the strengths of Wendt's account is that it takes this challenge seriously, and does not fall prey to the pop-science approach of speaking in a loose analogical manner about quantum mechanics—as though there were a magical power of observation that created the world we inhabit through an unconstrained act of will. Instead, Wendt tries very hard not to make more of quantum indeterminacy than the physics will actually support. Even though in ordinary life we can safely ignore quantum effects when measuring objects and calculating results, there are special circumstances in which quantum effects can be observed on a macroscopic level—and he argues that those circumstances impinge directly on the problem of consciousness, and thus on the social and political theories that we develop.

Wendt's pathway from quantum mechanics to consciousness is a complex one, involving quantum brain theory (the notion that neurons in the brain are structured in such a way as to allow the brain to sustain quantum coherence—in effect, the brain is a quantum computer rather than a mechanical or digital one; pp. 96–97); panpsychism (the notion that "mind is intrinsic to matter at the elementary level"; p. 112); and a "quantum vitalism," according to which the shielding of a macroscopic quantum-coherent state from its environment is the physical condition of possibility for subjective experience —and subjective experience, in turn, is for Wendt the meaning of consciousness and the essence of life (pp. 141–43). He freely acknowledges at numerous points in the argument that he is drawing on minority and even fringe speculations, discredited and ignored by most of the scientific and philosophical communities, but justifies the thought experiment he is undertaking—"what kind of ontology do we get if, complementing and informed by the third-person knowledge of quantum brain theory, we give full epistemic standing to our first-person knowledge of consciousness?" (p. 111)—by suggesting that only such bold conjectures have a chance of succeeding where other approaches to explaining consciousness have failed.

Wendt is untroubled by the notion that he and the physicists and biologists and philosophers on whom he draws could be wrong; instead, his question is whether "assuming" these theories "to be true might help solve the

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mind-body problem" and provide a naturalistic-but-non-reductionist account of consciousness (p. 108). If the science turns out to be wrong, then obviously his account collapses, but in the absence of any definitive refutation of quantum brain theory and panpsychism, the question of whether these theories can provide a plausible account of subjective experience when combined seems worth exploring if the stakes are as high as Wendt argues that they are.

But *are* the stakes so high? Is it really a problem for the social sciences that classical physics does not have a clear place for consciousness understood as subjective experience? Do we *need* a naturalistic-but-nonreductionist account of consciousness in order to do good social science?

For the remainder of this review, I propose to grant Wendt the technical specifics of the grounding of his "quantum model of man" (p. 149, and note that he claims there that "in his essentially relational character Quantum Man is if anything a Woman," but justifies retaining the term "man" because "'Person' is clumsier") in a quantum vitalism formed of quantum brain theory and panpsychism. I do not, in other words, want to quibble about whether Wendt has the physics right, especially since neither I nor the other readers of this journal are likely in any position to evaluate the physics. His discussion of light on pages 226–30, for instance, is fascinating, but I have *no idea* whether it is scientifically plausible to regard human visual perception as holographically resulting from the transactions of reference waves and object waves; in any case it is clear what Wendt wants to use this discussion *for*, which is to establish the possibility of immediately and directly knowing about objects, including knowing about other people and their states of mind. So for the moment, I will assume that his model of Quantum (Wo)Man has a sufficient basis in the relevant physics, so that I can examine the social theory that results from his model.

The account of social life that Wendt provides in the latter half of the book, the "quantum vitalist sociology" to which he is leading, is built on the basic notion that "human beings are literally walking wave functions" (p. 154), macroscopic but sustained states of quantum entanglement that support a "social life" that "is not essentially different from that of subatomic particles" (p. 131). Just as subatomic particles are not meaningfully said to have a precise location until they are measured, and are better thought of as probability distributions (superpositions of possible states of being) until then, in Wendt's quantum vitalist sociology the minds of people deciding between different options "are in a superposition rather than well-defined state," rather than *already* having well-defined preferences that just need to be maximized (p. 166). And just as subatomic particles can be in entangled states with other particles in ways that raise questions about their fundamental separateness, in Wendt's quantum vitalist sociology human beings have minds that "are entangled through language and not fully separable" (p. 237), which in turn supports a view of social structures as "superpositions of shared mental states" and "pure potentialities" that cannot be observed until they are actualized and thus collapsed into concrete instantiations (p. 258). We are left with a flat ontology of individuals engaged in social practices (and never fully separable from them) through which physically-real-but-immaterial intentional objects, like states and communities, are produced and sustained in an ongoing interplay of activity.

Individuals as fundamentally relational, social structures as potentialities rather than parametric constraints, social action as (re)creative of the social world. . .This all sounds very familiar. Indeed, it sounds very similar to the basic scientific ontology, or model of the social world, brought into international studies in the 1980s by feminists, poststructuralists, and constructivists—including Wendt himself. Aside from the fact that unlike in his first book, Wendt is now following social theorist Anthony Giddens more closely than the recently deceased realist philosopher of science Roy Bhaskar, and is therefore placing more emphasis on the *virtual* reality of social structure, most of the conception of social life on offer here would not be out of place in any contemporary relational or practice-theoretical piece of social science. Similarly, Wendt's discussion of linguistic communication as involving the use of words in a shared context to shape future action in a way that is not well captured by the linear notion of causality (pp. 234–36) sounds a great deal like the analysis of performative and constitutive language by constructivists like Nicholas Onuf and Friedrich Kratochwil, who were in part inspired by John Searle and J. L. Austin. Wendt acknowledges some (but not all: Onuf and Kratochwil do not appear in the book's bibliography) of these similarities in passing, noting ways that his model of social life looks New Materialist (pp. 146–47) and resonates with the "practice turn" (pp. 264–65), and sometimes noting that the implications he draws from quantum vitalism parallel conclusions drawn by pragmatists like John Dewey (p. 172, n. 79) and William James (p. 220, n. 46).

So what is the *value* of quantum vitalism, if the social theory it generates can be reached in other ways, and perhaps already *has* been reached in those other ways? Here it is important to remember that for Wendt, this is an exercise in fundamental ontology. Although he suggests that "this book may be read in an 'as-if' rather than realist way" (p. 35), as though quantum vitalism were just a heuristic rather than an account of how things actually are, the more profound payoffs of the argument are, I believe, forestalled by such a reading. As a heuristic, human beings as entangled "walking wave functions" engaged in an unending process of collapsing superpositions of possible states of the social world (and themselves as parts of the social world) into momentary

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actualities before heading off into probabilistic indeterminacy again may offer *something* to social theorists and social scientists, but it is difficult to see how that heuristic would be more useful or more productive than other models that are more familiar to social scientists: social life as composed of self-interested individuals and their interactions, social life as composed of networks and patterns of transaction, social life as segmented into class or ethnic categories, and so on.

Wendt does not engage in much competitive practical analysis of the relative merits of different ways of conceptualizing social life, which is disappointing though not unacknowledged (on p. 2, he suggests that he will produce "a more IR-focused 'volume 2' down the road"). He comes closest to articulating the comparative *explanatory* value for quantum vitalism in his discussion of "quantum decision theory" in Chapter 8, in which he canvasses experimental work in cognitive science that models decisions not as "being an expression of underlying pre-existing preferences" but as instead the *sources* of those preferences (p. 163), and suggests that such models explain observed behavior better than classical models of decision making. But even here he suggests a strong parallel with the performative notion of agency found in Judith Butler's work, which again suggests that the implications of quantum vitalism can be reached and clarified without any need for a quantum-mechanical account of consciousness.

Indeed, Wendt claims many times throughout the text that the real strength of his argument is that "it provides a physical basis for a thesis that is otherwise untenable" (p. 260). In other words, the ultimate value of the book stands or falls on his provision of a physical-but-immaterial basis for consciousness (physical because grounded in physics, and immaterial because wave functions in superposition are not material objects), and on the potential consequences for social science of not having such a basis. Without questioning whether Wendt's quantum vitalism *does* successfully provide such a basis, I do want to question whether we in the social sciences *need* such a basis. Once, the need for such consistency between physical and the social science would have been relatively uncontroversial; this impulse for the unity of science animated the Vienna Circle of logical positivists, and Comtean positivist sociology before that, and Hobbes's mechanical and geometric sources for conceptualizing political authority before that. So there is a striking continuity between Wendt's desire to reground social science on quantum physics, and earlier efforts to ground social science on pre-quantum or classical physics—all such efforts rest on the notion (or perhaps it's an article of faith?) that the social sciences are somehow adrift without a firm connection to the natural sciences.

This is precisely what I think we must call into question, however. *Why* do we need a physical basis for consciousness in order to get on with the business of providing theories about social life? As I noted earlier, Wendt's case turns on the notion that "intentionality depends ontologically on consciousness," such that "by attributing intentionality to human beings social scientists are also attributing to them consciousness" (p. 20). In making this claim, and in following John Searle in so doing, Wendt acknowledges that he is "expos[ing] a flank" in his argument and engaging in "blitzkrieg" in making this "stipulation," hoping to bypass this issue "in the hopes that global success will render it moot." I do not, however, think that the issue is so easily disposed of. Intentionality, for a follower of Anscombe or Wittgenstein or Dewey, is a property of *action*, not a property of an individual mind (that would be a "motive" or a "mental cause"). There can easily be purpose and direction to an action without a state of mind being at all involved: the action of hanging my coat on the coatrack has an intention that my coat not lie on the floor in a crumpled heap, and I cannot see how it matters whether I or you or a mechanical apparatus does the hanging. By *referring* to the behavior as "hanging up my coat," an intention is built in to the formulation from the start—but a conscious mind is not. Which does not mean that I am questioning whether I or you are conscious when one of us hangs up my coat; it means instead that the question of consciousness is *irrelevant* to the question of intentionality.

"No model of human beings is complete that does not have room for the experience of *being* human, of what it is like to be you or me," Wendt declares; "This feeling, consciousness, is such an essential feature of the human condition that a life without it would hardly be worth living at all" (p. 189). Be that as it may, I want to suggest that Wendt's concern here is *beside the point* unless we think that social science is supposed to do something that his own discussion of quantum entanglement suggests is impossible, which is to mirror or represent "the way things are" in an objective or neutrally detached sense. Theory-as-representation depends on precisely the kind of mind-world dualism that he hopes to replace with neutral monism and panpsychism (pp. 125–26): if the world is mind–matter all the way down, there is no mind-independent world to be represented, and no world-independent mind to do the representing. So theory cannot "correctly represent" the world, because that notion becomes *meaningless* in the absence of mind-world dualism. Consciousness might still be valuable and desirable, and we might want to attribute consciousness to ourselves and to other human beings and perhaps to other beings, but it does not follow from that desire that any social theory we craft must *also* include consciousness as a central element. If theory could correctly represent a mind-independent world, then there might be some ontological imperative to "get it right" in a dualist sense, and make sure that our theories correctly corresponded to the world. But quantum entanglement makes this a nonsensical

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proposition. Hence, discussions of consciousness, even discussions of the physical basis of consciousness, while fascinating, are not necessary for us to engage in social science.

Instead, it is sufficient to focus on *intentional social action*, and bracket the question of consciousness and its physical basis the way we generally bracket gravity and electromagnetism and both general and special relativity when we engage in explaining social outcomes and social phenomena. Social action is purposive action, and thus has goals rather than simply proceeding randomly; as long as we can get a grasp on those goals and purposes, we have enough to engage in social science. Hence, all that a meaningful social theory requires is a notion of intentionality, which can be cashed out in a variety of ways: through the attribution of actor preferences by the analyst, through careful empirical analysis of social context, through readings of the circulating stories used to attribute agency and actor-hood, and even through the analysis of functions served by different social arrangements. No account of consciousness is required for us to talk about notions like war, trade, torture, human rights, diplomacy, (in)security, international institutions, or any of the myriad other "intentional objects" that populate our international studies bestiary. Unless we are trying to complete the unity of science project, we can safely *ignore* the physics of consciousness.

To give just one example, consider "the state." Not only is the state composed of multiple individual human beings whose activities somehow have to be coordinated, but the state also shows up in many of our existing theories of international politics—both our scholarly theories and the "folk theories" or operative paradigms that characterize our everyday, ordinary ways of speaking—as an actor in its own right. "Germany went to war with France" is a perfectly comprehensible statement, precisely because we conventionally attribute intentionality to states like Germany and France; in our accounts they *do* things, often through their authorized representatives to be sure, but the very fact that states *have* authorized representatives acting in their names is an important social fact about the present situation of international politics. Does it follow that we need to attribute *consciousness* to the state as well? I would say no. We could follow John Searle and suggest that collective actors like the state exist as we-images held in individuals' heads; we could follow Benedict Anderson and suggest that the collective imagination of the (national) state as a bounded community is a social process involving the public circulation of narratives; or we could follow Erik Ringmar and suggest that actors exist only in stories, and track the evolution of such stories over time. In any of these approaches, we can discuss, evaluate, and explain the intentional actions of Germany without thereby making Germany into a conscious being. Intentionality does not necessitate *any* account of consciousness, let alone a physical account, in order to be a coherent starting point for theories about social outcomes.

In fact, while it is incontrovertibly the case that human beings are *physical* beings, it is also incontrovertibly the case that human beings are *social* beings. No one seems to mind much when natural scientists ignore the social aspects of human life, perhaps because "from a natural-science point of view" is a phrase in common circulation—and means, I would posit, not that there are no *other* points of view but that the speaker is adopting a *particular* point of view that emphasizes physical factors. (Indeed, Wendt suggests that in the book he is interested "in how a physicist might think about human nature" (p. 151); the very grammar of the sentence implies the existence of other points of view on the topic.) One also hears the phrase "from a religious point of view," and properly understood, there can be no conflict between claims made from such a point of view and claims made from a natural-scientific point of view; assuming otherwise would be a category mistake. (As Galileo once quipped, the Bible is a book that tells one how to go to heaven, not how the heavens go.) Why not, then, be content with starting "from a social-science point of view" that highlights the intentional character of social action, and leave aside both physical and divine matters? Why grant pride of place to the natural-science point of view?

Wendt has done the field a great service by working through the implications of what a natural-science, and specifically quantum-mechanical, view of social life might be like. Treated as metaphor, the quantum vitalism he outlines might provide grounds for fertile social theorizing. Treated as literally true (and potentially, literally false—the jury is still out on quantum brain theory and panpsychism), it raises the question of whether we *need* to adopt a natural-science point of view when engaged in social science. Let the debate begin!

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