# Why the Difference Between Quantum and Classical Physics is Irrelevant to the Mind/Body Problem

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COMMENTARY ON: Stapp, H. P. (1995) Why Classical Mechanics Cannot Naturally Accommodate Consciousness but Quantum Mechanics Can. *PSYCHE, 2(5)*.

ABSTRACT: I argue that the logical difference between classical and quantum mechanics that Stapp (1995) claims shows quantum mechanics is more amenable to an account of consciousness than is classical mechanics is irrelevant to the problem.

## 1. Introduction

1.1 Henry Stapp (1995) argues that "classical mechanics is not constitutionally suited to accommodate consciousness, whereas quantum mechanics is" (abstract). This, he asserts, is because of "certain logical deficiencies" that are not present in quantum mechanics (1.3). The ground advanced for this claim is that classical mechanics holds that a "physical system is to be conceived of as fundamentally a conglomerate of simple microscopic elements each of which interacts only with its immediate neighbors" (2.12). In particular, a classical description of a system will include a description of field values at points in the system, but these descriptions record only what is going on at each of the points, and not features of the system as a whole. Stapp adds, "One may, of course, *postulate* some extra notion of 'emergence'. But nature must be able to confer some kind

of beingness beyond what is entailed by the precepts of classical mechanics in order to elevate the brain correlate of a belief to the status of an ontological whole" (2.12). As I understand Stapp, the crucial difference between quantum mechanics and classical mechanics is supposed to be that in the latter the basic vector description of the system can include information about the whole of the system and not just about points in the system: "each of the 2 x (2L+1)^(M x N)^ registers in the quantum mechanical description of the computer/brain corresponds to a possible correlated state of activity of the *entire* classically-conceived computer/brain" (3.10).

1.2 I contend that this difference between classical and quantum mechanics is irrelevant to the traditional mind/body problem, of which the problem of understanding the relation between consciousness and our bodies is one part. First, I present an account of what that problem is, how it can be motivated independently of the difference between classical and quantum mechanics, and what the basic logical options are in responding to it. Second, I show that the difference between classical and quantum mechanics that Stapp focuses on does not distinguish between the various logical options in responding to the problem, and thus that it does not in itself provide any solution to it. Third, I argue that any solution that is open to the quantum theorist is equally open to the classical theorist.

# 2. The Mind/Body Problem

2.1 There are many different mind/body problems, so it would be a mistake to try to describe 'the' mind/body problem. But the problem I will present has been a central problem in the tradition in the philosophy of mind, and is one of the central problems about the relation of mental to non-mental properties and phenomena, and it is the one in particular with which Stapp is concerned. The problem is generated by a set of propositions all of which can be given strong motivations, and yet which are jointly inconsistent.

1. Some objects have mental properties.
2. The fundamental constituents of objects (i.e., the objects to be listed in the catalog of particle physics) do not have mental properties.
3. Mental properties are not conceptually or definitionally reducible to non-mental properties.
4. Every feature of every object is deducible from a complete description of it in terms of its fundamental constituents and their properties and relations.

The problem is that from (2)-(4) we can deduce the negation of (1). That is the mind/body problem. (The consciousness/body problem is the mind/body problem restricted to mental properties the possession of which entail that their possessor is conscious or potentially conscious.)

2.2 Responses to the mind/body problem can be classified according to which of the above four jointly inconsistent propositions they reject. For example, the Cartesian

substance dualist rejects (2), by arguing that there are objects which have mental properties which are not composite. (This is the ancient view that the mind or soul is a simple substance.) The panpsychist, who holds that all non-complex objects have mental properties also rejects (2) (e.g., Leibniz--see Nagel for a recent discussion). The eliminativist (e.g., Churchland) rejects (1). The reductionist (e.g., the functionalist) rejects (3). Finally, the emergentist rejects (4).

2.3 The problem can be motivated independently of concern for the differences between classical and quantum mechanics. To motivate (1), we need only the assumption that we know that we have mental states. To motivate (2), we need only the following two assumptions. The first is that no basically new sorts of entities have come into existence since the Big Bang--i.e., the list of fundamental physical particles has not changed since the Big Bang, or, at least, no new sorts of particles have appeared which cannot be characterized in terms of the same family of properties which we draw on in describing those originally present.<1> The second is that at some time in the past no objects had mental properties. To motivate (3), we can appeal to the apparent conceivability of non-material thinking beings. Finally, to motivate (4), we can appeal to the success of science in explaining the behavior of complex systems in terms of laws governing their constituents. These are all powerful motivations. That is why the mind/body problem is so hard. But none of these motivations depend on the features of physical theory that distinguish classical from quantum mechanics. Thus, we should be skeptical of any claim that a solution to our problem is to be found by focusing on such differences.

# 3. Quantum Mechanics and the Mind/Body Problem

3.1 Any solution to the mind/body problem must reject one of the assumptions that generate it. Our first question is whether the difference Stapp points to between classical and quantum mechanics shows that if one accepts one or the other of these theories one must reject one or another of the assumptions that generate the problem. The answer is 'no' because the difference Stapp points to, as he acknowledges, is purely a logical one. The difference hinges on whether the vectors in the basic description of a physical system contain information only about points or also contain information about the whole system. Nothing about that difference bears on whether any of the elements in the vectors entail that the system has mental properties, or that it does not. So this difference between classical and quantum mechanics makes no difference with respect to propositions (1) and (2). As a matter of fact, of course, neither classical nor quantum mechanics assigns mental properties to the basic constituents of objects. But this has nothing to do with whether vectors in the basic physical description of a system encode information only about points in the system or about the system as a whole as well. The logical difference likewise does not speak to the conceptual relations between mental and physical properties, and so does not bear on proposition (3). Nor does the logical difference bear on whether or not the theories are complete, and so it does not bear on proposition (4). Therefore the difference which Stapp identifies in the structure of classical and quantum mechanics is logically irrelevant to the mind/body problem.

3.2 Our second question is whether one of the solutions to the mind/body problem is more problematic for classical than for quantum mechanics. If so, then there would still be an important point to focusing on the details of each for the purposes of resolving the mind/body problem. But precisely because of the independence of the logical structure of each from the above four propositions, there is no solution that the quantum theorist could adopt which the classical theorist could not adopt as well, and vice versa.

3.3 Let us leave aside dualism and panpsychism, which, although logical options, have little more to recommend them, either on the classical or quantum mechanical view. That leaves us with eliminativism (rejecting (1)), reductionism (rejecting (3)), or emergentism (rejecting (4)).

3.4 Clearly, if eliminativism is an option for either view, it is an option for both. The issue here is basically epistemic. Is our evidence for the existence of mental state epistemically prior to our evidence that our physical theories are complete, even in the event that they do not make room for any mental properties? Since our evidence for any theory in part depends on our sensory experience, and, indeed, to be in a position to theorize at all requires having beliefs and desires, eliminativism is self-defeating. We could embrace it only at the cost of making incoherent our justification for believing the theories which are supposed to support it. But in any case it is clear that the issue is independent of the differences between quantum and classical mechanics.

3.5 What about reductionism? The main contender for an adequate reductionist theory of mind nowadays is functionalism (see Dennett, e.g.), or a combination of functionalism with externalism (the view that what thoughts we have depends on our relations, particularly our causal relations, to things in our environments). However, quantum mechanics offers no advantage over classical mechanics here, since the terms required for defining the relevant functional organizations and relations are no more than those required to describe, e.g., the functional organization of a computer, and its causal relations to macroscopic objects, which can be accomplished independently of how our fundamental physics works out. That leaves conceptual reduction of mental properties to physical properties at the level of basic theory, but this is equally implausible on either classical or quantum mechanics.

3.6 The only hope, then, of finding a position that quantum mechanics favors over classical mechanics lies in emergentism. I assume that emergentism is in fact the position which Stapp adopts. But emergentism is as much an option for the classical view as it is for the quantum view. Indeed, emergentism first became prominent in the latter part of the 19th Century (though, in fact, both functionalism and emergentism were anticipated by the Ancients). The point which Stapp seems to think favors quantum mechanics over classical mechanics here has to do with whether the vectors of the description of a physical system themselves contain information about the whole system. But this is relevant only if one thinks that in describing how mental properties are related to physical

properties on the emergentist view one must (a) treat the emergent property as a property of an aggregate of particles and (b) treat the emergent property (as seems reasonable) as nomically dependent on some property of the whole system it is a property of and (c) require that the property be one information about which can be recovered from that contained in a vector in the basic physical description of the system. We can grant the first two requirements, but there is no justification for the third. Even if a vector description of a classical system does not contain in each vector information about the whole system, from the complete description of the system one can of course recover information about the whole system. There is no conceptual or logical difficulty in an emergent property nomically supervening on a property ascribed to a system by a description of it in terms of vectors which record information only about points in or elements of the system. (A property P supervenes on a family of properties B (B1,...,Bn) if and only if for any object x, and any property Bi in B, it is nomically necessary that if x has Bi, then x has P, and for any object x, it is nomically necessary that if x has P, then x has one of the properties in the family B. That one property (merely) nomically supervened on another (or family of others) would not be a fact that emerged from an examination of the physics of the fundamental constituents of matter.) There is no interesting sense, then, in which quantum mechanics is more friendly to emergentism than is classical mechanics.

3.7 I conclude that the difference between quantum and classical physics is irrelevant to the mind/body problem.

# Notes

<1> I am indebted to Scott Hagan for drawing my attention to the need for this qualification.

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