4. Gazzaniga's "The Ethical Brain".

Michael S. Gazzaniga is a renowned cognitive neuroscientist. He was Editor-in-Chief of the 1447 page book *The Cognitive Neurosciences,* which, for the past decade, has been the fattest book in my library, apart from the 'unabridged'. His recent book *The Ethical Brain* has a Part III entitled "Free Will, Personal Responsibility, and the Law". This Part addresses, from the perspective of cognitive neuroscience, some of the moral issues that have been dealt with in the present book. The aim of this Part III is to reconcile the materialist idea that brain activity is *determined* with the notion of *moral responsibility*, which normally depends upon the idea that we human agents possess *free will*.

Gazzaniga asserts: "Based on the modern understanding of neuroscience and on the assumptions of legal concepts, I believe the following axioms: Brains are automatic, rule-governed, determined devices, while people are personally responsible agents, free to make their own decisions."

One possible interpretation of these words---the quantum-theoretic interpretation---would be that a person has both a mind (his stream of conscious thoughts, ideas, and feelings) and a brain (made of neurons, glia, etc), and that his decisions (his conscious moral choices) are free (not determined by any known law), and that, moreover, the rules that govern his brain *determine* the activity of his brain *jointly* from the physically described properties of the brain *combined* with these conscious decisions. That interpretation is essentially what orthodox (von Neumann) quantum mechanics---and also common sense intuition---asserts.

If this interpretation is what Gazzaniga means, then there is no problem. But I believe that this is <u>not</u> what Gazzaniga means. Earlier on he said: "

> The brain determines the mind, and the brain is a physical entity subject to all the rules of the physical world. The physical world is determined, so our brains must also be determined.

This seems to be suggesting that by "determined" he means determined solely by physically described properties, as would be the case if the concepts of classical physics were applicable. However, what he actually said was that "the brain is a physical entity subject to all the rules of the physical world." The rules of the physical world, as specified by contemporary (orthodox quantum) theory, explain how the brain is governed in part by the brain and in part by our conscious choices, which themselves are not governed by any known laws. If this physics-based understanding of "determined" is what Gazzaniga means then there is no difficulty in reconciling the fact that an agent's brain is "determined" with the fact that this agent's person is "free": the agent's *brain* is determined partly by his brain and partly by his conscious free choices, and hence the *person* whose actions this brain controls is likewise jointly controlled by these two factors, neither of which alone suffices.

If this contemporary-physics-based interpretation is what Gazzaniga meant, then he could have stopped his book right there: that interpretation is in complete accord with common sense, and with normal ethical theory. Thus the fact that he did not stop, but went on to write his book, including Part III, suggests that he is using not the quantum mechanical meaning of "determined"; but rather the meaning that would hold in the classical approximation, which exorcizes all the physical effects of our conscious choices. Indeed, he goes on to say:

> If our brains are determined ,,, then … Is the free will we seem to experience just an illusion? And if free will is an illusion, must we revise our concepts of what it means to be personally responsible for our actions?

I am assuming in this appendix that Gazzaniga is adhering essentially to nineteenth century physics, so that "determined" means automatically/mechanically determined by physically described properties alone, like a clock, and that he is thus endeavouring to address the question: How can one consider a person with an essentially clocklike body-brain to be morally responsible for his actions? How can we uphold the concept of ethical behaviour within the confines of an understanding of nature that reduces each human being to a mechanical automaton?

Gazzaniga's answer is built upon a proposed restructuring (redefining) the meanings of both "free will" and "moral responsibility". Following an idea of David Hume, and more recently of A. J. Ayer, the word "free" is effectively defined to mean "unconstrained by external bonds". Thus a clock is "free" if the movements of its hands and cogs are not restricted by external bonds or forces. However, the "Free Will" of traditional ethical theory refers to a type of freedom that a mechanically controlled clock would not enjoy, even if it had no *external* bonds. This latter---morally pertinent---kind of free will is specifically associated with consciousness. Thus a physically determined clock *that has no consciousness* is not subject to moral evaluation, even if it is not constrained by external bonds, whereas a person possessing a conscious "will" that is physically efficacious, yet not physically determined, is subject to moral evaluation when he is not constrained by external bonds. Thus the morally pertinent idea of "possessing free will" is not the same as "unconstrained by external bonds or forces." The Hume/Ayer move obscures the morally pertinent idea of freedom, which is intimately linked to consciousness, by confounding it with different idea that does not specifically involve consciousness. This move throws rational analysis off track by suppressing (on the basis of an inapplicable approximation) the involvement of consciousness in the morally relevant conception of "free will".

Ethical and moral values traditionally reside in the ability of a person to make discerning conscious judgments pertaining to moral issues, coupled with the capacity of the person's conscious effort to willfully force his body to act in accordance with the standards he has consciously judged to be higher, in the face of strong natural tendencies to do otherwise. The whole moral battle is fought in the realm of conscious thoughts, ideas, and feelings. Where there is no consciousness there is no moral dimension. *Moreover*, if consciousness exists but is permitted by general rules to make no physical difference---that is, if

consciousness is constrained by the general laws to be an impotent witness to mechanically determined process---then the seeming struggle of will becomes a meaningless charade, and the moral dimension again disappears.

It is the imposition, by virtue of the classical approximation, of this law-based kind of impotency that eliminates the moral dimension within that approximation. The morally pertinent free will is eradicated by the classical approximation even if there are no external bounds. Calling a system "free" just because it is *not constrained by external bonds* does not suffice to give that system the kind of free will that undergirds normal ethical ideas.

Gazzaniga's attack on the problem has also a second prong. He avers that "Personal responsibility is a public concept." He says of things such as personal responsibility that: "Those aspects of our personhood are---oddly---not in our brains. They exist *only* in the relationships that exist when our automatic brains interact with other automatic brains. They are in the ether."

This idea that these pertinent things "are in the ether" and "exist only in the relationships" is indeed an *odd* thing for a materialistically-oriented neuroscientist to say. It seems mystical. Although ideas about personal responsibility may indeed arise only in social contexts, one would normally say that the resulting *ideas* about personal responsibility *exist in the streams of consciousness of the interacting persons,* and a materialist would be expected to say that these ideas are "in" or are "some part of" the brains of those socially interacting persons. Yet if the causes of self-controlled behaviour are wholly in the brains and bodies of the agents, and these brains and bodies are automatically determined by the physically described body-brain alone, then it is hard to see how these agents, as persons, can have the kind of free will upon which our moral and ethical theories are based. Some sort of odd or weird move is needed to endow a person with morally relevant free will if his body and brain are mechanically determined.

But if some sort of weirdness is needed to rescue the social concept of personal responsibility, then why not use "quantum weirdness". The quantum concepts may seem weird to the uninitiated, but they are based on science, and they resolves the problem of moral responsibility by endowing our conscious choices with causal influence in the selection of our physical actions.

It is hard to see the advantage of introducing the changes described by Gazzaniga compared to the option of simply going beyond the in-principle-inadequate classical approximation. Why do thinkers dedicated to rationality resist so tenaciously the option of accepting (contemporary orthodox quantum) physics, which says that our conscious choices intervene, in a very special and restricted kind of way, in the mechanically determined time development of the physically described aspects of a system---during the process by means of which the conscious agent acquires new knowledge about that system? Because acquiring new knowledge about a system normally involves a probing of the system, it is not at all weird that the system being examined should be affected by the extraction of knowledge from it, and hence come to depend upon how it was probed.

The advantages of accepting quantum mechanics in cognitive neuroscience, and ultimately in our lives, are:

1. It is compatible with basic physical theory, and thus will continue to work in increasingly complex and miniaturized empirical situations.

2. It ties, in a prescribed manner, physically described data to the psychologically described data contained in the reports of human subjects.

3. It removes the incoherency of an ontological element that contains the empirical data, yet resides in a realm that has no law-based connection to the flow of physical events.

4. It allows the co-evolution of mind and brain to be understood, because each of these two parts contributes to the dynamics in a way that is linked to the other by specified laws.

5. It provides for a free will of the kind needed to undergird ethical theory.

6. It produces a science-based image of oneself, not as a freak-accident out-cropping, riding unnoticed like a piece of froth on an ocean, but rather as an active integral component of an incredibly intricate and deeply interconnected world process that is responsive *by known laws* to every person's mind-based inputs of meaning and value.