

Organizing Science: A Further Reply to Fred D'Agostino
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I want to thank Professor D'Agostino for his kind response to my comments. I am aware that epistemologists have debated the problem of incommensurability ever since Thomas Kuhn brought it up in reference to his concept of scientific paradigms. My way of thinking is more influenced by the pragmatism expressed in Paul Feyerabend's *Against Method* (1978), which also developed a concept of the incommensurability of disciplines and methodologies. If something works in terms of expanding or improving our understanding of a specific subject matter or in terms of solving a specific problem, it should be good enough. Scientists and academics should not be too limited by the constraints of disciplinary thinking and should instead try to build bridges to other disciplines and other forms of human knowledge.

I do appreciate and accept Professor D'Agostino's response that the question of an optimal organization of science is not even decidable since we have no conception of optimal scientific performance and since we have no possibility of comparing the current organization of science with some non-existing hypothetical alternative organization of science. Different arrangements for the organization of science maybe indeed so different as to be considered incommensurable or, in other words, might be so different that they could not even be compared in any meaningful way. Nevertheless, I do think that the way in which the disciplines were originally conceived and the way in which they developed is historically contingent and is not predetermined by some epistemic necessity. It rather appears that "the present organization of content into departments is highly arbitrary, a product in large part of historical accident" (Campbell 1969, 364). We could have a very different set of disciplines if there had been different founders of disciplines or different scientific inventors at the time, or if they had been preoccupied with different scientific questions or problems. The problem with disciplinarity as I see it is that it results in the division of knowledge into compartments that resist easy access because the disciplines protect their body of knowledge through the invention and use of discipline-specific knowledge practices. This makes real interdisciplinarity more difficult and causes, as described by Donald T. Campbell, in the "redundant piling up of highly similar specialties" separated in different disciplines and departments (1969, 361).

This disciplinary protectionism has probably more to do with tribalism and the self-interest of the stakeholders of the discipline rather than with epistemic necessity. A more profitable direction for science than towards increasing specialization and the resulting increase in the compartmentalization of knowledge could be breaking down some (not all) disciplinary boundaries in favor of creating scientific endeavors that are more holistic. To some extent this is already happening through the establishment of larger scientific clusters such as "earth science," the "life sciences," and the "behavioral sciences," which could indicate some convergence of knowledge coming from numerous different contributing disciplines in the respective clusters. This would not necessarily mean that we would be heading towards a "unity of knowledge" as suggested by Edward Wilson (1999), but it could mean the end of disciplinarity in the traditional sense in the long run. Unfortunately, as pointed out 40 years ago by Donald Campbell, "the present

social organization of science impedes" the creation of a unified scientific cluster such as behavioral science (1969, 363). This resistance by the stakeholders of disciplinarity to unify knowledge (as much as it can be unified anyway) makes me wonder whether there are better ways of advancing knowledge and our understanding of the world.

I generally accept the very important points made by Fred D'Agostino, which very well highlight the paradoxical nature of innovation. Although I regret not having read D'Agostino's book on *Incommensurability and Commensuration*, I am sure it is a fine and innovative piece of research, which was probably not appreciated as much as it deserved because philosophers could not relate to a way of thinking that is not commensurable with their own theoretical foundations and beliefs about what are sound ideas and methods in philosophy. The more innovative the research is, the more difficult it becomes for disciplines to accept it as a valuable contribution to the growth of knowledge. There is probably a large amount of very high quality innovative research, which never really entered the scientific debate and thus had little impact just because it was so advanced that it was not commensurable to the existing body of disciplinary knowledge. We may never know how many brilliant research projects fell into obscurity because they never passed academic peer review or never attracted enough funding. Some of that lost or hidden knowledge maybe available in secret government or corporate laboratories, but may not be available in mainstream academia, as it is easier for governments to fund 'out-of-the-box' ideas than it is for 'normal science' to accommodate them.

As to Professor D'Agostino's point about the problem of the training of new generations of scientists in interdisciplinary fields, it is certainly an accurate observation that postdisciplines have often failed to 'discipline' their subject sufficiently and that this could impact on the quality of future research and innovation. Again, the solution here may not lie in more narrow specialization and disciplinarization of interdisciplinary knowledge fields, but rather in more holistic approaches for understanding particular issues and resolving specific problems. What is needed is a better training of young researchers in a broad range of methods and ideas instead of early specialization in tiny fields of specialized knowledge. Innovation maybe also best served by breaking down disciplinary specializations and compartments of knowledge. Only if knowledge becomes more accessible to anybody who needs it, it will be more accountable and ultimately more useful for society. We should aim for a better organization of science and knowledge even if we do not know how it would like.

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