

Lilv Kay says I misinterpreted her book [*The Molecular Vision of Life*; review, Spring 1993]. What I perceived as an attempt to allege a conspiracy was rather an instance of historical determinism (a phrase not used in her book) as applied to science, which she has painstakingly revealed.

Well, I see. I, all the Caltech biologists, the Rockefeller Foundation, et al., all being “cut of the same cultural cloth,” were manipulated by the genie of a historical determinism that Kay is now able to discern. The Rockefeller Foundation did not have to co-opt the Caltech biologists—they resonated to that same drummer, shaped by the same “social and political agendas,” all presumably thirsting to achieve “social control” through biology.

Sorry, Ms. Kay; scientists don't think that way and science is not done that way. And to argue that it is, is demeaning to the scientists involved and false to history. The development of science does not fit your mold. Natural science has evolved in an orderly fashion, determined by the structures of nature itself and paced by the genius and inspiration of talented scientists, not by the alleged social agendas or machinations of agencies such as the Rockefeller Foundation.

The biologists and chemists at Caltech sought imaginatively to utilize the advancing knowledge in their own disciplines combined with major conceptual and technical advances in allied

disciplines to achieve deeper insight into the phenomena of living organisms—into genetics and biochemistry and physiology and neuroscience, and other fields. Deeper insight could be obtained through deeper analysis of the processes underlying these phenomena. And the tools for this deeper analysis were *only then* becoming available—X-ray diffraction (and computers), electron microscopy, isotopes, ultracentrifuges, spectrophotometers, and so on.

These possibilities derived in only the most tangential sense from any “social and political agendas” of the time. They derived from the great advances in science in the 20th century. By the 1930s, '40s, and '50s, molecular approaches to biological phenomena became possible, for those with scientific vision. And the subsequent developments in molecular biology have now provided a firm base for further understanding in developmental biology, neurobiology, and others. Since the Enlightenment, the principal constraints upon science have been, with rare exceptions, the constraints of nature and the limits of available research technology, not a “political and economic framework.” (Although today, admittedly, the high cost of some experiments becomes limiting).

When Kay writes: “The rise of molecular biology, then, represented the selection and promotion of a particular kind of science, one whose form and content best fitted with the wider, dominating patterns of knowing and doing. The molecular vision of life was an optimal match between technocratic visions of human engineering and representations of life grounded in technological intervention, a resonance between scientific

imagination and social vision,” and that “from its inception around 1930 the molecular biology program was defined and conceptualized in terms of technological capabilities and social possibilities. Representations of life within the new biology were a priori predicated on interventions that, in turn, aimed from the start at reshaping vital phenomena and social processes,” she seriously misrepresents the motivations, the mind-sets, of the scientists involved. By using the language of conspiracy (a conspiracy need not be secret; see Webster), whether or not every action is referred back to a postulated guiding historical determinism, she gives the whole enterprise a most undeserved and sinister cast.

Simplistic applications of historical determinism to science are not “subversive”; rather they are misguided, written by nonscientists who do not comprehend the processes of science. Progress in science does not “escape history”; it has its *own* historical logic. The past 60 years has been the feasible and natural time for the development of molecular biology. Efforts to interpret such progress in accord with an irrelevant ideology only grievously distort both the science and the scientific personalities involved.

Kay asks, “who should speak for the past?” In this instance, fortunately, the “past” is not past, for it yet resides in living memory. More generally, the past speaks for itself, but only to those who understand its language.

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