

Lecture 13

Critique of the Mertonian Paradigm

Since the 1980s, the commercialization of academic science has strongly increased. To be sure, science at large has always included research primarily carried out for its economic benefit, especially since the second half of the 19th century. Yet, the large-scale commercialization of *academic* science is a more recent phenomenon. In the course of the 1990s, this phenomenon has been explored and a variety of studies have become available. Assessments of the rise of entrepreneurial academia differ sharply. On the one hand, it is welcomed and sometimes even seen as a necessary step in the history of academic institutions. On the other hand, the problematic consequences of commercialized academic science are also widely discussed and increasingly acknowledged.

In response to these problems, universities, research institutes and science policy organizations have adopted a variety of normative codes of good scientific conduct. Almost invariably, these codes are based on, or derived from, the social ethos of science formulated by Robert K. Merton in 1942. In this lecture, we will find out to what extent a Mertonian ethos can still be useful in the present context of a strongly commercialized science. The discussion will be focused on the strongly increased practices of the patenting of the results of publicly funded research institutions.

Merton: The Founder of the Sociology of Science

Merton proposed a programme for research: to trace the way the institutional environment of science, including its norms and cultural values, impinges on science – not on the nature of science or the substance of its theories but on its progress and development. This research programme set the new field apart from the conception of science studies as a pastime for natural scientists – turned commentators of their field (a conception still dominant in some countries). Merton is sometimes criticized for *not* producing a systematic theory of society or a system of sociology, and for instead using his extraordinary talents to focus theoretical propositions on empirical research (see Bierstedt 1981).

Yet in his stubborn insistence that theory must have utility for research and must adapt its range and conceptions to this role, Merton was ahead of his time rather than behind among American sociologists. Certainly, in sociology of science his research orientation has set a trend that continues today within and without the Mertonian programme; and in sociology in general, grand, unifying systems of thought are now treated with widespread suspicion. If the Mertonian programme has failed, it has not failed in recommending and initiating professional sociological research.

There exists today a “new sociology of science”, also known as the “sociology of scientific practice” or the “sociology of scientific knowledge”, which has become a central part of the larger field of science, technology, and society. This new brand of

social studies of science has created its research agenda in opposition to the Mertonian programme. The following concerns itself with the criticism the Mertonian approach has attracted in relation to this new development. Stripped to its essentials, this criticism can be divided into two categories:

- (a) First, it consists of an attack on the “normative” and “functionalist” orientation of Merton’s sociology of science;
- (b) Second, it questions any research agenda that saves the effort of examining in detail the substance of science and of scientific work.

The Critique of Merton

Interestingly enough, Merton’s original work on Puritanism and the rise of modern science has not attracted the attention it deserves among sociologists. Sociologists more readily latched on to his later essays, particularly his work on the “ethos of science”. Merton’s first fully fledged discussion on this ethos, as we have already discussed in the earlier lectures, is a paper from 1942 in which he described “four sets of institutional imperatives”: universalism, communism, disinterestedness, and organized skepticism. These are the “guiding principles” of scientific work, the “canons” expressed through demands made upon scientists: scientific findings must be published (the norm of communism), knowledge claims must be subjected to impersonal criteria of evaluation (universalism), personal interests must be excluded from proper scientific procedures (disinterestedness), and criticism is permitted and encouraged (organized skepticism).

The critics argued that these norms are neither stable properties nor exclusive sanctionable ideals of scientific activities. Where the norms are endorsed, “counter norms” also appear which to some degree cancel the original imperative. Consequently, both norms and counter norms may be perceived as part of a larger (and changing) rhetoric of science whose relationship to scientific practice remains an open question.

But the criticism runs deeper: it is directed against any approach that treats norms, or values, as primary explanatory principles of social behaviour. Within the sociology of science, the goal of “explaining” scientific behaviour itself became a point of contention. Where the goal was maintained, the normative model was replaced by the interest, conflict, and interaction models of scientific conduct.

What is significant is the extent to which the problems historians had with Merton’s approach and the problems on account of which the new social studies of science moved away from Mertonianism are identical. The point is that social influences upon science, and indeed the social makeup of science, cannot be adequately understood if the “cognitive” beliefs, the methodical procedures, the ontological assumptions, and more generally the technical structure of this institution are not known, and not addressed in the analysis. Merton’s definition of science remained an outsider’s definition. Since then, the sociology of science has emulated the history and philosophy of science by becoming a field that *includes* the substance of science. It no longer shuns the responsibility of considering the technical content of scientific work. In fact, it often considers it in as

much detail as do the scientists themselves. The result is that the sociology of science has turned into a sociology of scientific knowledge. It has become internalist as well as externalist concerned with the content within as well as the context of scientific work.

The critiques of the Mertonian ethos of science may be divided into **four** major issues:

- (i) The extent to which the norms of science are peculiar to science;
- (ii) The actual conduct of scientists in various organizational and historical contexts, and the extent to which their conduct is governed by the norms of science;
- (iii) The “morality” of the moral imperatives of science;
- (iv) The relation between the scientific ethos and the development of scientific knowledge.