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Merton's Ethos of Science: Excerpts and Summaries

Robert K. Merton wrote a series of papers on the sociology of science in the 1940s and 1950s and is commonly recognized as the founder of the field. Merton laid out four norms that constitute the “ethos” of science: community-wide fundamentals that he proposed were necessary to sustain science as a viable institution.¹

Universalism

The acceptance or rejection of claims entering the lists of science is not to depend on the personal or social attributes of their protagonists.²

[Claims should be evaluated with] pre-established impersonal criteria consonant with observations and with previously confirmed knowledge.³

The evaluation of novel scientific theories and data should not take into account the characteristics of the author. Once scientific ideas enter the public arena, they must be judged solely on their endogenous merits. This principle requires that the scientific professions be open to all talents and that entry not be barred on the basis of the social attributes of applicants. It further requires that scientific discoveries not be accepted or rejected on the basis of the national origin of their discoverers.

Communism

The substantive findings of science are a product of social collaboration and are assigned to the community. They constitute a common heritage in which the equity of the individual producer is severely limited. . . . The scientist's claim to “his” intellectual property is limited to that of recognition and esteem.⁴

¹ Robert K. Merton, “Science and Technology in a Democratic Order,” *Journal of Legal and Political Sociology* 1 (1942): 115–126.

² *Ibid.*, p. 118.

³ Robert K. Merton, “The Normative Structure of Science,” in N.W. Storer, *The Sociology of Science* (Chicago: University of Chicago Press, 1973), p. 270.

Professor Lee Fleming and Doctoral Candidate Christopher C. Liu prepared this note as the basis for class discussion.

The scientific ethos is incompatible with the definition of technology as "private property" in a capitalistic economy.⁵

Communism requires that scientific discoveries become the common property of all and that scientific results be reported in a timely fashion for both priority and recognition.

Once something has been discovered, it cannot be owned by the scientist who discovered it but can be used by anyone. Ownership within science is limited to the status and recognition that comes from making important discoveries. Communism requires not only that scientists not attempt to control the application and use of their discoveries but also that they not keep their discoveries secret.

Disinterestedness

The demand for disinterestedness has a firm basis in the public and testable character of science.⁶

Disinterestedness requires that scientists abstain from prejudice in the interpretation of their findings and that they strive only for truth rather than to prove some answer that they prefer for nonscientific reasons. Although it will often be the case that scientists expect to find an answer that will advance their careers more quickly than alternative answers might, this principle requires that this preference not be allowed to affect the interpretation or dissemination of findings.

Organized Skepticism

[Science] does not preserve the cleavage between the sacred and the profane, between that which requires uncritical respect and that which can be objectively analyzed.⁷

Organized skepticism requires that the community of scientists withhold acceptance of scientific findings until they have seen the evidence supporting them and until those findings have been replicated. Furthermore, the skeptical nature of scientific inquiry does not allow any assumption to remain sacrosanct. This principle is institutionalized in the practice of science through the use of refereed journals and the commonality of replication research.

⁴ Ibid., p. 121.

⁵ Ibid., p. 123.

⁶ Ibid., p. 124.

⁷ Ibid., p. 126.