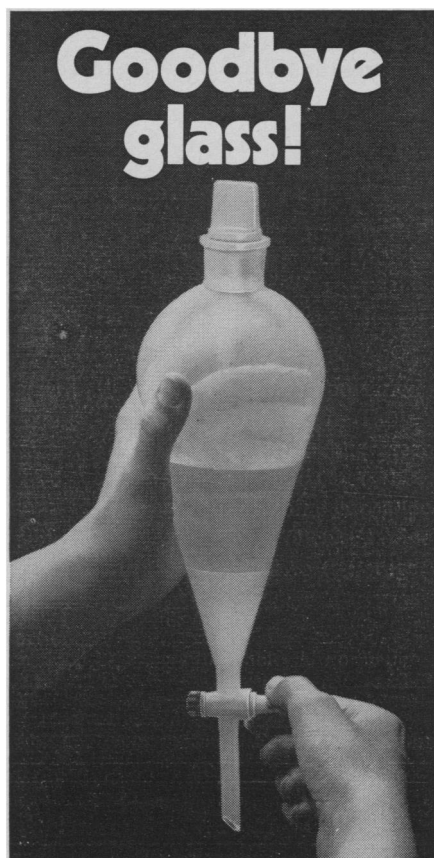
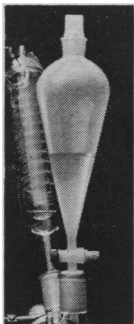




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manism in Social Science" (also 14 May, p. 661) Simpson, reviewing Friedrichs' *A Sociology of Sociology* and Gouldner's *The Coming Crisis of Western Sociology*, uses the word "paradigm" at least seven times and also refers explicitly to Kuhn's work. The widespread acceptance of Kuhn's ideas by scientists indicates that his insights illuminate the circumstances in which they actually practice science. His rejection by philosophers indicates that concepts that are clear to the research worker whose situation and environment they describe are unclear to the philosopher.

Nowhere, either in *Criticism and the Growth of Knowledge* or in Shapere's review, is the paradigm concept considered as a construct in the field of sociology. It is perhaps in this role that the paradigm concept will ultimately stand or fall. That Galileo recants or that Kuhn retreats has little to do with the descriptive and predictive power of their insights or with the productivity of the research that can go on under the aegis of their conceptual frameworks. Obviously, my approach here is intentionally Kuhnian. The acid test of the paradigm concept is not logic but effect, that is, its descriptive and predictive power. If the concept is effective it will survive and then the philosophers will have to find a way to deal with it.

WALTER J. FRASER

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Indicators of Drug Effectiveness

One of the major problems in the practice of preventive medicine in developing countries is guaranteeing that drugs and biologicals are still effective at the time of use. This is especially true for live virus vaccines which must be kept within a narrow temperature range. Because of the hazardous conditions that sensitive pharmacologicals encounter in transit from the laboratory to the patient, many ineffective (and thus potentially harmful) drugs and biologicals are administered, or many effective drugs and biologicals are discarded because of a suspicious history.

Field workers desperately need a fail-safe indicator which either changes the color of the material or appears on the label (perhaps obliterating it) when temperature, time, or other factors have

adversely affected the effectiveness of the material. Sterilization indicators, which are routinely used in autoclaving, operate according to the same principle.

If the United States were to adopt similar devices for drugs and biologicals, the immediate benefits would be international.

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Reform at the National Academy of Sciences

Page's editorial (14 May, p. 635) on the new Institute of Medicine of the National Academy of Sciences (NAS) raises some important issues that deserve further discussion. The most serious problem is whether the NAS or an institute within it can provide the kind of leadership that is needed to "encourage creative change" [Stewart Udall, quoted in C. E. Barfield, *Nat. J.* 3, 111 (1971)]. Clearly some of the innovations outlined by Page are attempts to improve the situation. Especially laudable is the intent to make a candidate's election to the Institute of Medicine contingent upon a commitment of time for public service. Perhaps this same stipulation should be extended to the entire Academy, which in the past has been a kind of exalted Phi Beta Kappa.

Unfortunately, such minor reforms do not go far enough. The most regressive feature of NAS—the election of members by a closed group—would be retained. This virtually assures that the institute and the NAS would remain unaccountable to the public and to the scientific community at large. I cannot help but feel that the problems of the poor and of minority groups will continue to be neglected under these circumstances.

The model provided by NAS is so deficient that a wholly different institution should be established to supply scientific and medical advice to the government. It should be designed to encourage inputs from competent scientists and nonscientists who are not necessarily members of the elite establishment.

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