"Facile Humanists"

Regarding Amitai Etzioni's editorial (15 Mar., p. 1041), I would inquire whether he was referring to *all* humanists when he used the term "facile humanist" or only to those humanists who are facile?

His statement, that the two favorite pitfalls of facile humanists are (i) basing their entire assessment on a single value and (ii) assuming empirical facts rather than gathering and analyzing data relevant to the assessment at hand, itself appears to be an expression of the very pitfalls he decries.

New derogatory labels are not needed as we address ourselves to complex issues. The divisiveness they introduce simply cannot be afforded anymore.

One is tempted to speak of the "facile sociologist," except that one would be as guilty of violating one's percepts as Etzioni appears to be of violating his precepts.

BERNARD J. FINE
Woodside Road,
Harvard, Massachusetts 01451

Facile humanists are a small subset of the universe of humanists. The same holds for facile sociologists.

AMITAI ETZIONI
Department of Sociology, Columbia University, and *Center for Policy Research, Inc., 475 Riverside Drive, New York 10027*

Cancer Chemotherapy

The Research News report on cancer chemotherapy by Thomas H. Maugh II (31 May, p. 970) is commendable. It may even help to resolve some of the questions regarding national budget allocations for cancer.

I would like to offer some additional information that will contribute to the report's completeness and historical accuracy. The dramatic curative effect of methotrexate in disseminated choriocarcinoma was one of the earlier milestones. It was introduced and developed by Roy Hertz and M. C. Li (*1*). The concept of adjuvant chemotherapy was developed and organized by surgeons, headed by the late I. S. Ravdin, with multi-institutional participation under George E. Moore and Lyndon E. Lee, Jr. (*2*).

It should also be pointed out that cancer chemotherapy is an international adventure. Important contributions have been made by scientists in England, Germany, Japan, and the Soviet Union. Advances have stemmed from many more institutions, investigations, and countries than indicated in Maugh's report.

MICHAEL B. SHIMKIN
Department of Community Medicine and Oncology, School of Medicine, University of California, San Diego, La Jolla 92037

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Raw Materials: Energy and Environmental Constraints

In his report "Raw materials: U.S. grows more vulnerable to third world cartels" (News and Comment, 18 Jan., p. 185) Nicholas Wade states: "Improving domestic supply is one major approach to increasing self-sufficiency. Others are recycling and substitution. With each of these strategies the room for maneuver appears to be if anything shrinking as new constraints emerge, such as environmental protection and the rising cost of energy." Increased domestic production, recycling, and substitution will indeed be subject to energy and environmental constraints. These constraints, however, will affect the three strategies in very different ways.

Domestic supplies of raw materials can be improved by exploration, the working of marginal deposits, and new extraction technology. The working of deposits of lower and lower grade will greatly raise the energy demands of production and often will have serious environmental implications. The energy requirements of new extraction processes, on the other hand, may be greater or smaller than those of processes in current use. Similarly, the energy and environmental aspects of materials substitution vary from case to case.

The energy and environmental features of recycling are complex. The use of secondary materials tends to save energy and reduce pollution. Recycling saves chemical processing energy because secondary raw materials are more concentrated and purer than primary raw materials. Scrap metals are already in the reduced state and generally require only refining and in some instances only melting. A thermodynamic analysis of the production of five major metals has shown that the theoretical energy requirements of secondary production as a percentage of primary production can be as low as 2 percent for magnesium and 5 percent for aluminum (*1*). This analysis assumes ideal conditions and does not take into account process inefficiencies or the energy requirements of collection and mechanical processing. According to another estimate, the recycling of nonferrous metals requires approximately 20 percent of the energy of primary production (*2*). The energy savings from the use of scrap in the production of steel depend on the process and range from approximately 25 to 50 percent; recycling of ferrous scrap also eliminates the pollution associated with the production of coke which would be required for the smelting of iron ore.

Production of paper from paper stock rather than wood pulp reduces energy consumption; the saving has been estimated as 60 percent (*3*). The reclamation of glass, which seems to have only a marginal advantage with respect to raw materials, may become economical because of energy savings; it is already attractive for its potential role in solid waste disposal.

Very little is known about the energy consumed by the collection, transportation, physical separation, and mechanical processing of secondary raw materials. The nature and location of old (or postuser) scrap determine the amount of energy expended in collection and transport. The energy consumed in mechanical processing of scrap metals and other secondary materials can be evaluated, but this has not yet been done. Because of energy constraints, the optimum amount of recycling will always be smaller than the physically possible maximum.

MICHAEL B. BEVER
Department of Metallurgy and Materials Science, Massachusetts Institute of Technology, Cambridge 02139

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