British AAS: Counterattack on Gloom about Science and Man

Exeter, England. "He that increaseth knowledge increaseth sorrow," said Ecclesiastes, and, in recent years, the scientific community, looking at the purposes to which many of its works have been put, has taken up the theme in a great wave of self-flagellation—so much so, that rhetorical agonizing over the profession's less pleasing effects is now *de rigueur* at scholarly conventions. In addition, concern and guilt have evolved to the point where, out of meeting season, they are looked after by specially created institutions—such as Pugwash, various national chapters of the Society for Social Responsibility in Science, and groups designed to inform the mind of the public and prick the conscience of the scientist.

True to form, concern over what science has wrought was sprinkled among the hundreds of papers delivered at the 131st meeting of the British Association for the Advancement of Science (BAAS), held here from 3 to 10 September. But what was perhaps most noteworthy was that two leading figures of British science and technology, BAAS President Sir Peter Medawar, Nobel laureate and director of the National Institute of Medical Research, and H. M. Finniston, president of the BAAS engineering section and deputy chairman of the British Steel Corporation, used the occasion of their presidential addresses to invite their colleagues to ponder whether the hair shirt properly belongs in science's wardrobe.

Title from Bacon

Titling his address, "On the effecting of all things possible"—from *New Atlantis*, Bacon's encomium of science's potential for good—Medawar noted a historical cycle of adulation of reason and intellect followed by despair over their value for managing man's affairs —a despair, he observed, which often leads to "that mad and self-destructive form of anti-rationalism which seems to declare that because reason is not sufficient, it is not necessary." Today, as has happened before, he continued, "we are oppressed by a sense of decay and deterioration, but this time, in part at least, by a fear of deterioration of the world through technological innovation. Artificial fertilizers and pesticides are undermining our health (we tell ourselves), soil and sea are being poisoned by chemical and radioactive wastes, drugs substitute one kind of disease for another, and modern man is under the influence of stimulants whenever he is not under the influence of sedatives. Once again there is a feeling of despondency and incompleteness, a sense of doubt about the adequacy of man, amounting in all to what a future historian might again describe as a failure of nerve. Intelligent and learned men seek comfort in an elevated kind of barminess (but something kind and gentle nevertheless). . . . Once again there is a rootlessness or ambivalence about philosophical thinking, as if the discovery or rediscovery of the insufficiency of reason had given a paradoxical validity to nonsense. . . ."

Bacon's message, Medawar went on, proclaimed "the virtue and dignity of scientific learning and of its power to make the world a better place to live in. I am continually surprised," he said, "by the superficiality of the reasons which have led people to question those beliefs today. . . . We wring our hands over the miscarriages of technology and take its benefactions for granted. We are dismayed by air pollution but not proportionately cheered up by, say, the virtual abolition of poliomyelitis. . . . There is a tendency, even a perverse willingness, to suppose that the despoliation sometimes produced by technology is an inevitable and irremediable process, a trampling down of Nature by the big machine. Of course," Medawar continued, "it is nothing of the kind. The deterioration of the environment produced by technology is a technological problem for which technology has found, is finding, and will continue to find solutions. There is, of course, a sense in which science and technology can be arraigned for devising new instruments of warfare, but another and more important sense in which it is the height of folly to blame the weapon for the crime. I would rather put it this way: that in the management of our affairs we have too often been bad workmen, and like all bad workmen we blame our tools. I am all in favor of a vigorously critical attitude towards technological innovation: we should scrutinize all attempts to improve our condition and make sure that they do not in reality do us harm; but there is all the difference in the world between informed and energetic criticism and a drooping despondency that offers no remedy for the abuses it bewails."

A Sense of Failure

Having gone this far in his upbeat assessment of the prospects for filtering undesirable consequences from science and technology, Medawar, unfortunately, offered no recipe for doing it. "Bacon's belief in the cultivation of science for the 'merit and emolument of life' has always been repugnant to those who have taken it for granted that comfort and prosperity imply spiritual impoverishment. But the real trouble nowadays," Medawar stated, "has very little to do with material prosperity or technology or with our misgivings about the power of research and learning generally to make the world a better place. The real trouble is our acute sense of human failure and mismanagement, a new and specially oppressive sense of the inadequacy of man. . . . Once again our intellectuals have failed us; there is a general air of misanthropy and self-contempt, of protest but not of affirmation." Where to find solace? In the realization, Medawar said, that, in the long history of man's existence, science is a youthful newcomer. "If we imagine the evolution of living organisms compressed into one year of cosmic time, then the evolution of man has occupied a day. Only during the past 10 or 15 minutes of the human day has our life on earth been anything but precarious. . . . Only during this past 15 minutes . . . has there been progress, though, of course, it doesn't amount to very much. We cannot point to a single definitive solution of any of the problems that confront us—political, economic, social or moral, i.e. having to do with the conduct of life. We are still beginners, and for that reason may hope to improve. To deride

British to Probe Effects of Riot Gas

London. A brief investigation by a government-appointed group of scientists has failed to confirm reports of persistent illness related to exposure to CS riot control gas last month in civil disturbances in Northern Ireland. But, upon recommendation of the inquiry group, the government has decided to conduct further research on the effects of the gas. The inquiry was headed by Sir Harold Himsworth, former secretary of the Medical Research Council; Robert Thompson, professor of biochemistry at Middlesex Hospital, and Anthony Dornhurst, professor of medicine at St. George's Medical School. Dornhurst stated that no evidence of long-term effects was found, but that detailed data were lacking on the pharmacological effects of the gas. If it is going to be used, he was quoted as saying, it should be subjected to the same standards of testing that are applicable to drugs before they may go on the market.—D.S.G.

the hope of progress is the ultimate fatuity, the last word in poverty of spirit and meanness of mind." Referring to Hobbes's likening of life to a race, Medawar stated, "The race had no finishing post as Hobbes conceived it. The great thing about the race was to be in it, to be a contestant in the attempt to make the world a better place, and it was a spiritual death he had in mind when he said that to forsake the course is to die."

Down to Tactics

If Medawar, the pure scientist, was presenting an inspirational vision of the good that should be recognized in science and technology, Finniston, the engineer, was getting closer to tactical detail. Engineering, he observed, could, until quite recently, concern itself primarily with achieving narrowly defined results at the lowest possible cost. Side effects, such as environmental pollution, were given little or no consideration. But "the difference between practice now and in the future," Finniston stated, "is that engineers will not only be expected to but will have to take precautionary measures against the adverse features of technological innovation before and not after these make themselves felt; and with state responsibility for living conditions being increasingly assumed, the social implications of engineering activity are likely to react more and more upon engineering thinking and action in the future." A conflict exists, he noted, between pressures for new scientific applications and cautious attitudes arising from concern over adverse side effects. In the past, "resolution of this conflict has come to be determined solely on the outcome of economic benefit. Since such economic benefits are generally determined only by the positive contribution of the innovation and not counter-determined by its negative or adverse aspects, this seems to introduce a favorable bias to technological innovation from the start." But public and professional attitudes are swinging away from this pattern, Finniston went on, and increasingly engineers will have to consider the social implications of their work. "Undoubtedly," he added, "arbitrary representations (within limits) will have to suffice for the time being but the incorporation of such qualitative social features in quantitative terms will become an increasingly important concern of the more creative engineers."

As is the case with their U.S. counterparts, the social sciences here currently find themselves increasingly in fashion among government and industrial policy-makers and planners. And again, as is the case in the United States, some social scientists are expressing concern about the implications of easy access to centers of power. In a paper titled, "Social science as a threat to society," Lisl Klein, who holds the title of Social Science Adviser to the Esso Petroleum Company, raised the question of whether the profession is actually equipped to deal with many of the problems it is summoned to handle. "One does not often hear a social scientist say 'I don't know,' " Klein observed. "Moreover . . . he often is not allowed to. People demand that he shall pronounce, and pronounce he does. It is not unusual, therefore, to hear judgments made, with all the authority of the social sciences, which are as intuitive and fallible as the milkman's. . . . It is sweet to be consulted, to dine with Ministers and Managing Directors and to draw fees which by their size are a measure of deference rather than of actual work done. In this there is collusion between society and the social scientist. The temptation to play God is very great because the need for God is very great, and industry is particularly susceptible to it."

Norms of Conduct

"When the social science community was small, there were some norms of conduct which could be taken for granted—that one does not, for example, do participant observation in secret, that one does not publish case material without the client's consent, or reveal identities without consent. . . . Institutional controls, however, can operate only in relation to the crudest and most tangible malpractices, and cannot cope —any more than they can in other professions—with the irresponsibility and manipulation and abuse of power that I am above all concerned about."

"In the kind of consultancy and social science bamboozling which is currently something of a growth industry, the client does not realize what is happening and is therefore denied a choice. . . ." One result of the popularity of the social sciences and the accompanying absence of professional standards of behavior is that "social science as a practice profession has at the moment greater potential for abuse than the others because people are less sure what it is about and therefore less able to discriminate; because it is marketed competitively in ways which confuse the customer; and because the roles of the practitioners are multifarious and ill-defined."

The meeting, held at the University of Exeter, was attended by about 2000 —which is one of the smaller turnouts in recent years. The reason, however, is believed to be related to a new financing arrangement for the British Association for the Advancement of Science, which has all along suffered from money problems. In the past, annual membership cost approximately $7.50, and this sum included registration for the meeting. This year, for the first time, the annual fee has been reduced to about $5.50, and there is a separate charge of nearly $17 for registration.

—D. S. GREENBERG