AAAS

The expert has no clothes

WASHINGTON is a destroyer of myths. It destroyed Richard Nixon. It is destroying Jimmy Carter. And last week, at the annual meeting of the American Association for the Advancement of Science, it was happily destroying the myth of the expert. In the climate prevailing at the meeting, any of the 5,500 scientists attending who were unconscious of or unconcerned by the political, social, or psychological dimensions of their work were made to feel distinctly uncomfortable. The conclusion: scientists must absorb, welcome, and understand politics if they are to retain a niche in the ecology of the latter quarter of the 20th century, and not attempt to ignore or deflect politics through the exercise of defensive public relations.

Six sessions addressed such issues: in sociobiology, where the validity of human sociobiology is a political matter as much as a scientific one; in recombinant DNA, where the assessment of risks is still a political issue, complicated now by the introduction of firms such as Genentech Inc. which hopes to produce insulin by the end of the year, and is not controlled by the NIH guidelines (neither are any firms, defence establishments, or the CIA); in the protection of 'whistleblowers'—people who, like Dr Thomas Mancuso, working for a government agency, call the wrath of the system upon them by claiming a danger exists that the agency management would prefer to ignore (Mancuso claimed that workers in the Hanford nuclear plant, Washington State, were subject to a 5% increased cancer risk, and was taken off the study); in the reception of unconventional science, where people with wild but possibly fruitful ideas receive short shrift from the scientific establishment without much evidence of proper assessment; and in the reproducibility of experiments, where, for example, in one double blind test 70% of experimenters were found to smile at female subjects in a psychological experiment while only 12% smiled at males, thus influencing conclusions on sex role differences.

All these topics involve controversial science, in the sense that it is science at the time of formation, where conclusions are contestable and political and other prejudices can influence the interpretation of results. At this point science is inseparable from politics, and the Washington meeting went a long way to showing why and how this was so case by case. The sessions

chipped at the armour of the expert who set him or herself up as the final arbiter of truth, letting the politics go hang, and showed his and her relativity to social context wherever the science was ambiguous.

In recombinant DNA, for example, one commentator (Dr Susan Wright of the University of Michigan) concluded that "claims that the available evidence points in one direction or another seem premature. The view that the risks are minimal should be taken as the tentative opinion of a relatively small sector of the scientific community rather than a well established, theoretical position." Dr Philip Handler, President of the National Academy of Sciences, during a rather protectionist speech, spoke of "a crescendo of concern which is now diminishing somewhat. The public was frightened by tales of imaginary hazards reminiscent of the *Andromeda Strain* (a book written to be entertaining, not believed). And the statements of a handful of scientists, few of whom were close to this field of research, were taken as evidence that 'the scientific community is itself divided'".

In human sociobiology, Dr Edward O. Wilson, of Harvard University, believed he was articulating firm scientific evidence for the genetic basis of human behaviour, while one of his critics, Dr Stephen Gould, also of Harvard, argued that Wilson was doing no more than telling 'just-so' stories and not accumulating truth at all.

In the study of low level radiation effects as a cure for cancer among Hanford workers, Drs Thomas Mancuso, Alice Stewart, and George Kneale believed their results, though based on a quite small number of cases, to be of great human significance, while other scientists associated with earlier (and ten times smaller) estimates of radiative danger (principally from studies of the survivors of Hiroshima and Nagasaki) tended to dismiss the new data as alarmist.

Handler expressed the wish that "those engaged in such research would behave as scientists generally do and refrain from publication until they have completed a sufficient series of coherent studies to enable rational decision, rather than announcing each experiment in turn, generating public alarm that can neither be justified or assuaged". But such a view would seem to be idealist when the public want and need to know about possible dangers

as early as possible.

Handler quoted Maurice Arthus, one of the founders of immunology, who warned that when one had a dogmatic attachment to a theory "to persist in one's faith becomes in a sense a question of honour. Having adopted such a public position the protagonist . . . becomes like the attorney who defends a client in spite of the evidence of his crime. . . ." Handler added "how reminiscent of the recent history of DDT, diethylstilbestrol, cyclamates, and the SANGUINE antenna". Those of a different political persuasion might like to add others to Handler's list.

The most strident critic of the ivory tower was representative Richard L. Ottinger, member of the House Committee on Science and Technology, who spoke in a session on recombinant DNA. "DNA research has given me a fascinating insight into the arrogance and anti-democratic spirit of which the 'established' scientific community . . . has shown itself capable. Those who lobbied so hard to prevent the Congress from taking steps many of us are convinced need to be taken to protect public health and safety have shown that they think themselves omniscient and infallible. 'We are the experts' the saying goes, 'and you can't possibly understand whereof you speak'. I resent that, and I resent it extremely, and the American public will destroy you if you take that attitude".

Further, Ottinger claimed that scientists were not apolitical at all, but in fact rather vicious in dealing with their recalcitrant colleagues. Handler spoke of the "bitter irony that . . . the protest movement appears to be growing significantly from within science itself. These voices may comprise a very small fraction of the scientific community, but the malaise is real". This sounds dangerously like what Ottinger describes as "suggestions that have been made that scientists who themselves urge constraints may be alienated from the main stream. We have seen this happen, again, in the nuclear debate, and I sincerely hope that, this time, researchers into the problems and hazards of DNA will not find their research stifled". Ottinger added: "If I disagree on a policy matter with another member of the House, I'll tell him, and then I'll do my utmost to defeat his position. What I won't do is vilify or threaten him. Academic politics, on the other hand, is a reality too many attempt to avoid recognising."

Robert Walgate