

Science and creationism

SIR—*Nature's* even-handed analysis of the US Supreme Court decision on the Louisiana Balanced Treatment Act (*Nature* 327, 643: 1987) has, as would be expected, brought responses from the viewpoints of creationists (Reginald T. Chelvam, *Nature* 331, 10: 1988) and naturalists (Andrew W. P. Roberts, *Nature* 331, 476: 1988). Under the sometimes emotional and personal reactions of these groups, there are two very different ways of looking at reality, and the genesis of this conflict lies in neither side acknowledging, much less seriously examining, the other's fundamental precepts in their own right.

From a naturalistic viewpoint, in which the totality of reality is to be found in the physical realm, the human activity of science is the way to truth, because there is no other reality beyond the physical and because science is the most successful means to study the physical universe. The attempted inclusion, therefore, of a deity or other supernatural activity in a naturalistic worldview is firmly and logically denied. That is, the naturalistic philosophy of scientism, which recognizes only that accessible to sciences as real, by definition denies anything beyond the physical. Science itself is neutral with respect to the supernatural.

From a theistic viewpoint, by which I mean a viewpoint which accepts a literally 'super-natural' deity as a valid aspect of reality, a central question arises from the nature of the interaction between the spiritual and physical realms. While there are a great variety of such worldviews, fundamental Christianity, from which a 'scientific creationist' viewpoint arises, is one that perceives a reality comprised of both natural and supernatural realms. In this perspective, both the physical and spiritual are legitimate aspects of reality and hence a naturalistic viewpoint that denies the spiritual is unacceptable.

Unfortunately, most of the interaction between proponents of these two worldviews is not at the level of these basic premises but rather several steps removed. The usual result is a shouting match rather than a constructive examination of each other's fundamental premises which would then provide a basis upon which to discuss the consequences of holding to these different worldviews. It is ironic, but perhaps not unexpected, that some theists (scientific creationists) appropriate the great credence of science in an attempt to justify and validate their position by calling on the name and methods of science rather than on the name and authority of their God. The naturalist's denial of any role of faith in their understanding of reality is likewise a curious matter as any worldview ultimately rests, in faith, on unproven presuppositions. We

thus have the proponents of naturalistic and theistic worldviews inappropriately claiming authority over territory belonging to the other, while denying the other's viewpoint as valid except through their own interpretations.

This is a sorry state indeed for those involved in the fray. Could we not now move, in a manner science so often claims for itself, to a more objective appraisal of such difficult issues as origins, starting from a respectful analysis of the basic presuppositions of each party rather than from emotional states removed by several orders from fundamental precepts?

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Academic freedom

SIR—I have followed the controversy, particularly in relation to academic freedom, about the Education Reform Bill championed by the UK Secretary of State for Education and Science, Mr Kenneth Baker (*Nature* 332, 386: 1988).

Guaranteeing academic freedom and sanctioning job security or permanent tenure are two separate issues. In this debate the two have unfortunately been mixed up. Academic freedom is vital for universities and must be preserved at all costs. What is academic freedom? It is the freedom granted to the academic community (students and teachers) to pursue knowledge as they see best without being subject to external pressure from church, government or economic forces. The choice of courses of study, the problem of research in various branches of learning, the procedure of evaluation and the award of degrees ought to be the monopoly of the university community with no outside interference. With such a sense of academic liberty, the academic community will in turn generate a sense of discipline and duty towards society at large. Within the ambit of academic freedom lie the means to preserve the memory of hard-fought battles for truth.

A teacher should be as free to give his or her opinion on controversial issues as any other citizen of a free society. To hold a certain opinion is a right granted to an individual as a member of a free society. So long as an opinion is not detrimental to academic growth, the holder is not liable to lose his job. Whether an individual's opinion or action is an impediment to the furtherance of academic growth should be judged by the academic community itself. This is true academic liberty. Any reform in education, however well intended, that does not guarantee to safeguard academic freedom makes the academic community subservient to the

ignorance of politicians and to bureaucratic arrogance. In the words of Cardinal Newman: "A university is a place of course, whither students come from every quarter for every kind of knowledge. It is a place where inquiry is pushed forward and discoveries verified and perfected and rashness rendered innocuous and error exposed by the collision of mind with mind, and knowledge with knowledge." That is possible only with unabridged academic freedom.

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Green beliefs

SIR—Your leading article "Greens against genes" (*Nature* 332, 667: 1988) cannot pass unchallenged. The implication that political environmentalists are "anti-intellectual" is both unjustified and unjust. Far from being anti-intellectual, the environmentalist party in Britain, to which the German Green Party in large part owes its intellectual heritage, is unique in its perception of the consequences of science and technology, an issue to which the other political parties pay lip service but are unable or unwilling to do justice.

The traditional distinction between science and technology must on this point, as elsewhere, be recognized and given due weight. Research into genetics is a science, genetic engineering is a technology. The consequences of science can only be to extend the sum of human knowledge, the consequences of a technology for the human race as a whole may be good or evil.

Combustion, to take an example, has been studied by chemists and we know much about it. Some of the technology resulting from this knowledge has been beneficial, such as the development of fire extinguishers that do not use chlorofluorocarbons; some has been disastrous, such as the dirty and excessive burning of fossil fuels, which must either be reduced or will ultimately cease under potentially catastrophic circumstances. Similarly, genetic engineering may have beneficial consequences (a cure for AIDS is much to be desired) but it may also have evil consequences if it allows politically controlled or financially motivated technologists to engender monstrosities.

The green parties of Europe favour the beneficial uses of technology and condemn those that are harmful. Far from being anti-intellectual, this stance is both clearly thought out and socially responsible, true to the humanitarian spirit of the great scientists of the past on whose work our present understanding rests.

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