CORRESPONDENCE

Social sciences

SIR — The leading article in *Nature* of 29 April (p.789) discusses the place of the social sciences *vis-à-vis* the natural sciences but does not pinpoint the essential differences.

Physical scientists base predictions on firmly established laws, and though individual scientists are far from infallible their answers have a good chance of being right. Engineers deal with situations for which there are no unique solutions — for example, a railway can be built along a number of alternative routes but once the choice is made the basic knowledge for its construction and operation is available.

Economics is different. Professors, politicians, bank economists, businessmen, unionists and treasury officials all advance remedies for economic ills. But no matter how confident these experts may sound, there are as yet no accepted criteria for evaluation. Even when a policy based on one line of thought has been selected the government is likely to abandon it half way through.

Still further from mathematical precision lie the social and behavioural sciences, including education. There is a great and pressing need for study and research, best based on a background of mathematics and statistics. But the variables are so numerous that seldom can rigorous laws be established.

Social scientists should have theories. Too often, however, these are advanced as facts (and no amount of repetition can convert an unproved theory into a fact!). Sociologists are at a disadvantage compared with applied scientists who, if basic information is lacking, can turn to controlled experiments. This is, I think, the essential difference. Social scientists must rely on inductive logic and judgment: the physical scientist can test his theories in the laboratory.

Were social scientists to acknowledge the limitations of their methods to the public and to advance their views as hypotheses rather than truths, would they not attract increased support?

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A private matter

SIR — I wish to point out a blooper in your leading article, "Colleges back from the dead" (*Nature* 10 June, p.443). Seven thousand dollars would indeed be a stiff fee for a year's tuition at a state university in the United States. It is safe to say, however, that no undergraduate at a public school is, for the moment at least, faced with a tuition fee even approaching this amount. While, to the British ear, "University of Southern California" may sound like the name of a state university, and while USC's football team has repeatedly proved itself equal to, or better than, that of any large state school (much to the dismay of University of California fans, of both the Los Angeles and Berkeley persuasion), nevertheless USC is, contrary to your implied assertion, an undeniably *private* university.

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No "remote viewing"

SIR — A long drawn out controvesy in *Nature* has followed the claim made by Puthoff and Targ[1] in 1974 that certain individuals can perceive objects or scenes blocked from ordinary perception by distance or shielding (the supposed phenomenon called "clairvoyance" by earlier generations). The most recent communications[2,3] raise issues about the content of Puthoff's and Targ's experimental records that can only be settled by direct examination of those records. However, their critic, Marks, has reported their refusal to grant him access to their records[2].

In an attempt to clarify this issue, writing as a *bona fide* investigator of long standing in this general area but having no prior involvement with these particular experiments, I recently requested access to the data on the Price and Hammid series on which Puthoff and Targ based their original case for "remote viewing". No reply has been received after an interval of two months, despite repeated approaches. It must be concluded that the evidence offered by Puthoff and Targ is not accessible to other investigators. In this sense their claim can no longer be regarded as falling within the scientific domain, and further public discussion appears unnecessary.

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1. Targ, R. & Puthoff, H. *Nature* **251**, 602-607 (1974).
2. Marks, D. *Nature* **292**, 177 (1981).
3. Puthoff, H. & Targ, R. *Nature* **292**, 388 (1981).

Centenary plea

SIR — At the meeting held in Cambridge last month to mark the centenary of Darwin's death, a statement was signed by 199 of the participants. The signatories ranged from Nobel laureates to graduate students and came from 20 different countries. They included specialists from the whole range of disciplines that impinge on the study of evolution. The statement read as follows:

> We have gathered at a conference to commemorate Darwin and to discuss the evolution of plants and animals in the past. However, we are also deeply concerned about what may happen in the future. Human beings are creating conditions that could easily bring the long evolutionary process to an end with the total destruction of all life. In particular, the arms policies of the major powers are desperately short-sighted and increasingly unstable. Even if the threat to use nuclear weapons has acted as a deterrent in the past, it is not likely to do so for the rest of time. The continued spread of nuclear weapons and the development of new chemical and biological weapons could easily result in a war that rendered this planet uninhabitable. We urge our governments to take a long view of what they are doing. Human beings have evolved with an intelligence that has created technologies of enormous power. This intelligence must now be harnessed to secure a long-term future for life on Earth.

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Index for patents

SIR — Patent specifications are one of the several forms of the primary sources of scientific and technological information. Announcements of patent specifications are primarily through the official gazettes of the patent office of a country, or through secondary services like *World Patent Index* and other abstracting and indexing services brought out by Derwent Publications Ltd, London. The official gazettes follow their own system of arranging the abstracts, while the abstracts in *World Patent Index* and in other secondary services follow the *World Patent Index* scheme. These services generally provide accession number, patent number and patentee index, but no subject index.

Searching would be made more simple and less time consuming if patent information services provided a subject index. The user is more often aware of the subject area in which he requires information than of the name of the patentee or patent number.

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Help for refusniks

SIR — We were glad to see a letter of Professor Legay, Secretary General of the World Federation of Scientific Workers (WFSW) in *Nature* of 11 February (p.452). No doubt, the federation can help to solve the problem of emigration of "refusnik" scientists from the Soviet Union, if it really wishes to, especially in view of the respect and influence it receives in this country. But Professor Legay, perhaps unwittingly, downgrades the dimensions and the acuteness of the problem.

We want to emphasize that the question is not about several separate individuals but about a large group of scientists who are subsequently refused permission to leave the country and whose access to normal scientific activity is, at the same time, being deliberately restricted or almost completely blocked in certain areas (such as seminars, conferences, teaching and, to a large extent, publications). As we understand it, this is precisely the situation in which WFSW can and must intervene and help according to the goals expressed in its charter.

It would not be an exaggeration to say that most of us feel as if sentenced to professional death. But there is also a great psychological pressure that every refusnik, not necessarily a scientist, undergoes and that results from general uncertainty about the future, especially the future of children, from the impossibility of getting any information on how long we have to wait (and some of us must wait 10 years or more for permission to leave), and from the absence of legal ways to contest refusals and to defend ourselves. It has to be understood therefore that we speak not only about emigration as such but about our very existence and the existence of many others who are in the same predicament, our existence as scientists and human beings, about the lives and future of our families.

The situation continues to deteriorate (contrary to the hope expressed by Professor Legay at the end of his letter). All scientific seminars organized by refusniks were closed