

Will China be tainted by western science?

CHINESE science is treading a careful tightrope between its long-term aspiration of a specifically Chinese-orientated scientific outlook and the short-term expediency of importing western ideas wholesale. Recent statements have indicated that although the ideal is still to the forefront of Chinese scientists' minds, it is perhaps being undermined by the very scientific exchanges essential to the modernisation of Chinese science.

The influx of western ideas into the physical sciences pertains to science itself as well as to its social dimension, which includes the administration, funding and general management of science and technology. In the past few months, some ministers and many scientific groups from China have toured scientific institutions in the west, and a large number of western scientific teams are returning the visits. The first impressions apparent in the media were that the Chinese showed great interest in western practice. An example is that after the visit of the State Scientific and Technological Commission delegation to Japan last December, articles appeared discussing the merits of such institutions as the patent system which were introduced into Japan when it became westernised. In fact, however, the Chinese attitude is a cautious one. Commentaries in the party paper on 19 April and 8 May, for instance, stressed that while China is learning advanced science and technology from abroad, it will on no account blindly import social practices; future science policy will be firmly China-based.

On the other hand, in looking towards the future, the Chinese realise that their present system of science management is

not perfect. They freely admit, among other things, that their national research efforts are plagued by wasteful duplications as well as damaging omissions — perhaps surprising in view of their central planning. It seems that the misguided motivation of some scientists, together with insufficiently democratic coordination between parallel funding offices, are the major factors. Some institutes have recently adopted the practice that individual contribution is judged mainly by the authorship of papers, but such professionalism can sometimes lead to researchers doing only publishable and prestige-promising work. The Chinese believe that the problem of rationalising the organisation of science and the decision-making processes will be solved by the inventiveness of the masses, rather than by imitating another country, no matter how advanced its science. Thus, many of the systems created and evolved in China during the last twelve years are likely to be kept, forming as they do a useful basis for improvement. During this period the achievements of Chinese science have been satisfactory, when compared to the resources available; last year, according to preliminary statistics, more than 12,000 research projects were successfully completed.

This attitude, that a specifically Chinese science can build on a firm past basis, is reiterated in a report on 10 April in the *Guangming Daily* of a meeting of Beijing University professors. The speakers, among them several leading scientists, asserted that as developments from foreign countries are incorporated into the Chinese social system, Chinese science must retain its original character. To us,

its outstanding features include an emphasis on combining both traditional and modern knowledge, on linking laboratory investigations with production in the field or factory, on collective rather than individual efforts and rewards, and on the participation of the masses in both the direction and the conduct of research. It is relevant in this context to note that China continues to devote considerable resources to the popularisation of science: it is setting up four additional specialised studios to cater for the rising demand for science and educational films, a demand at present partly satisfied by dubbing films purchased abroad. In the meeting, some professors also argued that political education should be emphasised in the training of young scientists.

For China, at present, the provision of scientific and technological manpower holds the key to the 'fourth modernisation' (*Nature* 19 April, p. 682). A concrete expression of this situation is that instruments such as electron microscopes — if they were foreign imports — are often under-used due to inadequate experimental skill or lack of maintenance.

According to a 1977 report from the Organisation for Economic Co-operation and Development in Paris, there were then some 335,000 scientists and 725,000 technicians working in China (excluding personnel engaged in medical research). At the National Science Conference convened in March 1978, the goal was set that by 1985 an army of 800,000 scientific workers will be formed, double the present number. Chinese universities took in a total of nearly 400,000 new students last year, and to help its educational targets China announced last August that it also plans to send some 10,000 students to the US, the UK, France, Germany and Japan. This year about 500 are going to the States, 200 to England, and 100 undergraduates have already arrived in France.

Although western visitors may import foreign ideas into China, the real danger to the concept of a long-term Chinese-orientated science lies in the return of these many young people after exposure to western scientific culture (although the flow in the opposite direction may also be interesting). This trend will be exacerbated by closer links between students in China and their counterparts abroad.

At present there is a dynamic balance between the ideal of an indigenous Chinese scientific culture and the influence of established western scientific ideas; only in the next five years, as these influences are absorbed, will the future pattern of the world's largest new scientific force become apparent.

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The world's first giant panda born by artificial insemination made its debut at Peking Zoo recently. The panda, named Yuan Jing — meaning 'First Crystal' — was born last September weighing only 120 grams. Yuan Jing has aroused interest around the world because of renewed hopes for the famous but unco-operative panda pairs at London Zoo and

Washington Zoo. All previous attempts to mate the pairs have failed, including flying in other pandas from the Soviet Union and China. China is the only country so far to have bred pandas successfully in captivity. Baby Yuan Jing started to walk at three months, developed the familiar black and white hair at five and was weaned at seven months.