

## Plant gene banks at risk

SIR — The article "Safeguarding the pool" (*Nature* 308, 109; 1984) does well to report the current international resources. In particular it highlights the move headed by a number of developing nations within the Food and Agriculture Organization (FAO) to create a "legalized framework" for genetic resources activities. This proposed agreement, yet to be ratified by member governments, is a matter of concern to those involved in plant genetic conservation.

The International Board for Plant Genetic Resources (IBPGR) has lately been described as ineffectual<sup>1</sup>, but while the policies of IBPGR during the past decade may not be totally free from criticism, it has achieved a great deal in preserving rapidly disappearing genetic stocks on a worldwide scale<sup>2</sup>. Moreover, it is now actively promoting the free exchange of conserved germplasm and supporting its utilization in plant breeding programmes throughout the world. In the long term, only plant breeding can solve the world's food production problems by producing varieties of food crops that can make the best use of irrigation and other farming inputs in developing countries. The foundation of any crop improvement programme is in turn the availability of a pool of diverse germplasm<sup>3</sup>. IBPGR has, amongst other national and international organizations, striven to make this germplasm available to all, by conserving it and distributing it freely.

One source of political controversy is the location of major gene banks in the "North" as opposed to the "South". While it is clear that the United States and the Soviet Union hold major germplasm collections, it should be stressed that these collections were established several decades ago, before the recent interest in genetic conservation. In fact, the collection held at the All-Union Institute of Plant Industry in Leningrad was established when Nicolai Vavilov, the Russian geneticist and germplasm pioneer, and his colleagues first undertook expeditions to survey genetic diversity in many crops throughout the world during the 1920s and 1930s. IBPGR has sought to redress the balance through the formation of a network of national and international gene banks.

Another political hot potato is the idea that genetic resources should be repatriated to the countries where they were collected. We believe that countries that are "gene-rich" should unquestionably have free access to their own resources. When IBPGR has sponsored collecting missions, the material collected has been divided so that a portion has remained in the donor country and a further portion has been deposited in a designated gene bank for long-term safekeeping. If genetic resources are to be repatriated with any effective purpose, then it is essential that adequate

preservation facilities and trained personnel are available to undertake the tasks at hand. Unfortunately, in many developing countries, adequate storage facilities do not exist. At the University of Birmingham we continue to train many scientists in the techniques of managing genetic resources. Most of these people have come from developing countries. However, conservation cannot often wait for such educational development. Surely it is better to have collected genetic resources before they finally disappear, and have them safely deposited in gene banks albeit in the north, than to have procrastinated while political considerations are resolved?

Some developing nations, by their current political strategy within FAO, are striving to score barely-relevant political points against the developed nations, while ignoring the urgent needs of their people. FAO may seek to create "a more institutionalized structure" for the conservationists of IBPGR. This, we are afraid will not only lead to greater "discussion" and debate, but also to inertia in conservation and irreversible loss of world plant genetic resources.

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1. Mooney, P.R. *Development Dialogue* 2, 1-172 (1983).
2. Hawkes, J.G. *Diversity of Crop Plants* (Harvard University Press (1983)).
3. *World Conservation Strategy* (IUCN, 1980).

## Higher education

SIR — Threats to the future of higher education come from several angles and strike at different levels. Some are political. People on the right tend to look to universities primarily to improve the nation's commercial prosperity while people on the left tend to regard them as potential agents of social change. But more sinister threats arise because people fail to see the danger to the character of higher education resulting from a progressive loss of the non-material values still held, sometimes subconsciously, by a high proportion of teachers within it.

Universities and polytechnics are of course servants of the society upon which they depend, but need to recognize that this involves providing a far-sighted social critique. Some of their influence on society is indirect: they can foster a climate in which a wide variety of intellectual, scientific and aesthetic enterprises can flourish. By encouraging the idea that standards matter — in attainment; in integrity and detachment; in methods of reasoning; in the search for truth through thick and thin — they can infuse society outside with their belief that knowledge is not merely worth possessing

but authoritative when possessed. Even this could fall short of conveying a sense that man is more than a passive unit and education more than acquiring information unrelated to his fundamental needs. It may leave society with the notion that the real function of universities is to make the machine, and the machines, work better. Better for what?

An essential part of a student's experience of higher education is to belong to an environment in which the importance of sheer knowledge, and of constantly adding to it, is taken for granted. To acquire knowledge of more than facts and theories, however, demands a maintained curiosity tinged, maybe, with wonder and at times with fear. For that curiosity to become superficial can be fatal not only to the student's education but to the progress of knowledge itself.

There is still a profound and encouraging confidence alive in higher education that truth *can* be found and that things do hold together; a widespread conviction that innumerable questions are worth asking, and that answers will eventually be discovered which will not contradict one another.

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## Multi-computer?

SIR — The recent news item on funds for computer time (*Nature* 307, 204; 1984) has an instance of art imitating nature. In multicellular organisms an assemblage of cells, suitably integrated, performs the various functions of the single, more complex cell of a large protist. Similarly, researchers at the California Institute of Technology propose using an integrated assemblage of microprocessors to provide the capabilities of a supercomputer such as CRAY. May we expect integrated multi-processors to evolve to larger, more diverse, more flexible and more powerful instruments than even the best super-computers?

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## Melding words

SIR — Expert though he is in the art of praising with faint damns, it ill becomes Bernard Wood (*Nature* 306, 140; 1983) to protest at the creation of new words without checking his dictionary. Clearly, he does not play cards.

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