

# COMMENTARY

by Bernard Dixon

## BIOTECH GLAMOUR AND DEVELOPING COUNTRIES



It was once fashionable to cite subatomic physics as the scientific discipline posing the most acute policy dilemma for less developed countries. Should they seek to emulate the best in the West, or eschew gravitons and gluons in favor of more "relevant" researches into the necessities of life? Would their ablest young investigators leave unless given massively expensive accelerators

with which to explore quantum affairs? Or would they stay at home willingly and plough their talents into more "appropriate" pursuits? Could the Third World afford high energy physics? Could it afford *not* to be involved?

Of all pure and applied sciences today, biotechnology has surely taken over the politically contentious position once occupied by particle physics. Here is a venerable craft, admirably illustrated by the indigenous fermented foods of southern Asia, now overtaken by the power and glamour of genetic manipulation. How can the LDCs possibly compete? Take the question of patents. Suppose that a South American group comes up with a new, unique and highly attractive fermentation process based upon a previously unknown organism isolated from coffee waste. Given the cost and uncertainty of securing patent protection even for a company in North America, it's likely that the inventors will take one look at the Budapest Treaty, have one conversation with an attorney, and conclude that they simply cannot afford to proceed further. Time, perhaps, for enlightened consideration to be given to the idea of a non-profit resource development corporation.

The harrowing problem of biotechnology *vis-a-vis* the Third World is giving rise to some extraordinary paradoxes. Oddest of all is the duality expressed by a vocal minority of commentators that (a) the bio-companies have failed us by not marketing more products and making more money, and (b) the same companies should be seized by limitless altruism, devise relatively unprofitable products, and give their know-how to the needy. Marc Lappé, adjunct associate professor of health policy in the School of Public Health at the University of California at Berkeley, expressed these views rather well recently in *Technology Review* (88:6, 14). "The new biotechnology firms are caught up in an even fiercer battle for survival," he wrote after describing the gargantuan costs of lawsuits and liability insurance that have driven some U.S. pharmaceutical manufacturers out of the vaccine business. Nevertheless, Lappé said, the gene splicers should be held "even more accountable than the major pharmaceutical corporations." He supported this by alleging that biotechnological commerce was exploiting earlier publicly funded research—though without explaining how this was supposed to differ from the corpus of pharmacological knowledge underpinning drug development. Besides, Lappé suggested, people like Herbert Boyer and Paul

Berg should be held to their "promises of great social benefits from an unfettered industry."

A notable feature of the Seventh International Conference on Global Impacts of Applied Microbiology, held earlier this year in Helsinki, was the absence of such rancorous, short-sighted and ill-founded arguments from the many Third World delegates present. The Finnish capital has a richly deserved reputation for political bridge building (not least as host to the Conference on Security and Cooperation in Europe), and while GIAM 7 witnessed more than one disagreement, its keynotes were constructive debate and mutual learning. Chaired by Professor H.G. Gyllenberg with a sponsorship list headed by UNESCO, this was one of those events demonstrating that people from East and West, North and South, can work together far more effectively than dogmatists and skeptics suppose. Common aims need not disappear beneath a welter of words about the merits and demerits of capitalism.

Besides, there are more subtle ways of calling into question certain applications of technology than by doctrinaire sermonising. Witness a speech at the Helsinki meeting by C.V. Seshadri from the Sri A.M.M. Muragappa Chettiar Research Centre near Madras. With all the authority of a distinguished Indian scientist talking about India, rather than a pundit instructing others from afar, Dr. Seshadri invited us to consider coolly and objectively what his own government was doing with his country's sugar cane. Firstly, less traditional *good* (solidified cane juice) was being produced each year, as more sugar was refined to yield the white variety from which virtually all traces of vitamins and minerals had been removed. Technologists were impoverishing a formerly valuable source of nutrients, rather than improving the admitted flaws in the age-old village process for making *good*. Secondly, increasing quantities of carbohydrate were being diverted away from *good* and indeed from molasses used for food or feed, towards alcoholic fermentation.

"In a tropical country, it befits a government with the welfare of its people at heart to use its carbohydrate resource to maximum benefit," Dr. Seshadri concluded. "To use it to make alcohol which can bear any amount of tax burden because of people's addiction, and hence justify the state's expanding exchequer, is to beg the question of proper, alternative and perhaps better use." Even teetotalers subsidized drinkers, he added, because industrial liquor too carried a potable spirit tax.

It is not necessary to be a card-carrying Marxist to agree that Dr. Seshadri has a point. Dispassionate examination of our use of resources is always a sobering exercise. But any suggestion that India is alone in its illogicality can be quickly dismissed. Despite Finland's prudent, restrictive policy concerning ethanol, our gracious hosts in Helsinki were uncharacteristically boastful about having mounted another major international gathering just before the microbiologists arrived. Its name: the 20th European Brewery Congress.

**Bernard Dixon, Ph.D., is a contributing editor of *Bio/Technology*.**