

CORRESPONDENCE

Development or Exploitation?

SIR,—Recently (April 28) the weekly magazine *West Africa* published an editorial reviewing Sierra Leone's progress during its first year as a Republic. The editorial suggests that: "Economically the future is much brighter than it was a year ago. The diamond slump is ending; Delco, the iron-ore producer, is expected once more to become profitable; Diminco, the diamond mining company . . . has got off to a good start; large-scale rutile mining is expected to be resumed. The value of the diamond industry to the country is still heavily threatened, however, by illicit diamond digging and by smuggling. In agriculture progress remains slow, but the goal of self-sufficiency inside two years in the staple food, rice, no longer seems unrealistic, and, if Common Market obstacles are overcome, the future for the expanding cocoa and coffee crops is good." It then goes on to say that the value of agricultural exports declined by 26 per cent in the previous year and that the world recession in the diamond market had hit Sierra Leone badly. The article is cautiously hopeful about the future of Sierra Leone's economy.

Like most other countries in tropical Africa, Sierra Leone is dependent on the export of raw materials (minerals and crops) to the rich nations of the world. Economists see the expansion of the EEC as a possible means of countries like Sierra Leone selling more raw materials, and, in the case of mining, this is often described as developing local industries. It is of course no such thing. The truth of the matter is that the more readily available raw materials are being exploited and exported as fast as possible and little thought is being given to the conservation of resources for any future development of manufacturing industries. It seems that we in the developed world are keen to cream off the raw materials in under-developed countries in order to satisfy our own needs as consumers. We seem content to condemn the under-developed countries to the role of producers of raw materials.

It might be (as argued by John Maddox, *Nature*, 236, 331; 1972) that price and demand are likely to shape the future availability of raw materials, but is it reasonable for the profiteers and consumers of the rich countries to persuade or to force the under-developed

countries to sell the best of their resources as quickly as possible? Would it not be more reasonable if a massive effort were made to enable the poor countries to develop real industries rather than to remain as producers of raw materials? If this were done the profits of the already-rich would be reduced and the Common Market might not expand quite so quickly as politicians and businessmen hope, but at least there might be a slight chance of real development in the poor countries.

Yours faithfully

D. F. OWEN

*Department of Animal Ecology,
University of Lund,
Ecology Building,
S-22362 Lund*

Educating Scientists

SIR,—The education of scientists is as unscientific today as ever it was. And it is poor consolation that education generally has remained an empirical study, dependent for its success on the devotion or genius of its, usually, unsung heroes.

Your report¹ of A. D. C. Peterson's plans for a "generalist" degree in "Education and Engineering" is yet another evidence of the confused thinking of educationists everywhere. In Australia, first degrees are as unspecialized as any generalist could wish, but in times of recession, or fear thereof, graduates are looking for jobs. Furthermore, the generalist training is far from successful in "teaching students to think". From practical experience, the more rigorous requirements of a specialized honours programme are preferable to the tentative probings of a broad pass degree course, especially in preparation for a "general profession" such as librarianship, where the prime requirement is to acknowledge the ways in which other people think.

Highly technical professions require specialized training, and our social and economic system depends upon an adequate supply of highly qualified graduates in natural science, engineering and so on. However, it is yet to be demonstrated that society itself is as amenable to objective study as the environment in which we exist. Education, general or specialized, does little to develop judgment, intuition, imagination or common humanity. And to develop an appreciation of the com-

plexity of situations, and the possible extent of knowledge, a study dedicated to a narrow field is far superior to a "grab of superficialities."

Universities, and Oxford of all has been the doyen in this respect, can leave the specialist study through the experience of an academic society. Peterson should look again before asking others to leap onto the educational roundabout where theories come and go with cyclical monotony.

Yours faithfully,

G. G. ALLEN

*Library,
Western Australian Institute of
Technology,
Hayman Road,
South Bentley,
Western Australia 6102*

¹*Nature*, 236, 321 (1972).

Tenure Decisions

SIR,—I wish to comment on the editorial "Is Tenure Tenable?" (*Nature*, 236, 261; 1972). Abandonment of the tenure system in favour of limited periods of engagement would seem an admirable experiment. I disagree with the editorial, however, regarding the corporate review of re-appointments. In my opinion a corporate review might deal unjustly with those who have made valuable contributions to a university. During periods of extreme economic stress, as we are experiencing in western USA, review procedures can degenerate to the level of public lynchings. To safeguard individuals with limited engagements from arbitrary and capricious corporate action it will be necessary to publish and enforce codes of ethical corporate action in matters of appointment and renewal. Administrators or departments who abuse established review procedures should be considered "Schreibtischtäter" (administrative crooks) and called to account for their actions.

Yours faithfully,

JOSEPH E. CUMMINS

*4809-180th SW,
Lynnwood,
Washington 98036*

Pesticides and Man

SIR,—John Maddox (*Nature*, 236, 436; 1972), in discussing untoward effects of persistent pesticides, states, "There are the strongest possible reasons for pre-