

Supplementary Report of Director

Nearly a year has elapsed since the research report for RSBS was prepared. The School is nearing the end of the 1970-72 triennium and the degree to which proposals made for it have been realised should be reported since these will be the basis for judging whether the plans being put forward for 1973-75 are feasible. In the Submission made for the current triennium it was suggested originally that the academic staff should grow to 49 by the end of 1972 but, due to restrictions in finance, this was subsequently revised to 43 academic staff, together with three Postdoctoral Fellows. It appears that at the end of December 1972 we shall be close to our target. There will be 42 academic staff in post, two others leaving the University in December. We shall also have six Postdoctoral Fellows in post, rather than the three originally proposed. This increase has come about by a planned change in emphasis from research scholars towards more postdoctoral education. In the Submission for the triennium it had been suggested that the number of research scholars would reach 24; this was changed in 1971 to 18, by converting funds for six scholarships into three Postdoctoral Fellowships. In fact at the end of 1972 we shall have 15 ANU scholars and 13 other research students who are supported on other scholarships, mainly Commonwealth Postgraduate Research Scholarships. Thus, the actual number of Ph.D students is less than had been expected, but in compensation there are more Postdoctoral Fellows.

It seems likely that this change in emphasis will continue, despite the fact that some members of the School seem to be in favour of a move towards conducting M.Sc courses. There might appear to be a conflict of interest between the frontier research which the School (and the Institute) should be doing and research of a purely educational character suitable for Master degrees by thesis. This problem will need watching. Personally I believe that only outstanding students should be recruited and only those who are capable of participating in the School's advanced research. To do this they would probably need courses to instruct them, but it is doubtful whether this could be regarded strictly as M.Sc work.

The Submission for the 1970-72 triennium said that work in behavioural biology would be developed. The area so far covered is in neurobiology and is concerned with the structure and function of nerve nets in lower organisms, especially insects and other arthropods. The development of research in integrated behaviour, including ethology, will be attempted during the coming triennium. During the present triennium the School has also succeeded in founding a new Department of Population Biology which will be concerned, in the first place, mainly with animal populations, their behaviour, dynamics and evolution.

During this year the first stage of the building for the School has been approaching completion but, disappointingly, the approach has been slower than we had hoped and there have been several sequential postponements of the finishing date, still uncertain. What has also been disappointing to me is the lack of communication between the architects, builders and the University's executives on the one side and the users in the School.

On 10 November, when the Governor-General is to open the building, it will not in fact be ready for occupation. Nevertheless it will be possible to appreciate to some degree the way in which it will be used and the extent to which common facilities will be a prominent feature in the School.

The time is approaching when I shall be handing over to a new Director and it is proper to show to what extent the School has developed in the way which Council approved in 1966. The Submission to the AUC in February 1965 suggested that the School should concentrate on significant problems rather than be organised in the conventional divisions of biology. It advocated that all the resources of description, of biochemistry and biophysics and of the characteristically biological discipline of genetics would need to be brought to bear on each of them. It was suggested that topics, hopefully of a complementary nature, should be selected throughout the range from the molecular level to whole organisms and populations of organisms including behaviour. In choosing particular topics it was suggested that "the concentration by the Research School of Biological Sciences in the early years on molecular biology and developmental and cellular biology on the one hand and on population biology and behavioural biology on the other, should lead to the illumination of central biological problems of value in all other areas of biological research and its practical application".

We now have five departments and two units established. Their research in 1971 is described in the research report presented herewith, but it may be useful to describe in a nut shell how the original conceptions are realised by their activities in the School. The Department of Genetics is still largely concerned with molecular and biochemical genetics and with evolution at the molecular level and has much left to do in areas of fundamental importance. However, it is too heavily biochemical, as is the School generally and needs strengthening in genetics! The Department of Developmental Biology is concentrating increasingly on widely studied aspects of cell biology, especially the structure, function and development of mitochondria, and on the ways in which hormones control and trigger development in plants. As yet, it has not attacked the fundamental problem of differentiation as was hoped. The Department of Neurobiology has made remarkable advances in knowledge of the precise structure of nerve nets concerned with vision in insects. An exhibition illustrating this work will be presented in the new building when it is opened. It has not encompassed ethology as was originally expected, but this will be developed independently in the planned new Department of Behavioural Biology. The Department of Environmental Biology is concerned with the stability of ecological systems, one aspect of population biology, including the exchange of energy and materials between organisms and the environment. It is also concerned with biochemical aspects of those fundamental processes in plants concerned with photosynthesis of importance in energy exchange. The new Department of Population Biology will deal with problems associated with the structure, dynamics and evolution of natural populations of Australian animals and plants.

Of the two units, Molecular Biology studies a special fundamental problem, the basis for the specificity of ribosomes in their function of synthesising proteins. The Taxonomy Unit, not envisaged in the original Submission, was started to help promote the preparation of a new Flora of Australia and has contributed somewhat to this by research on taxonomic principles in general and with the monographic

study of a few Australian plants. Its activities fall short of its original conception, further aid to which end will follow from recent initiatives of the Australian Academic of Science and of the CSIRO.

So far the researches of the School which appear to have attracted most international interest, are distinctively original and show especial leadership, have come from the fields of genetics, neurobiology, environmental and molecular biology.

Broadly, the original proposals for the development of the School have been realised, though not precisely in the ways or to the extent and in the directions originally envisaged. In part, time has gone by and precise objectives have altered slightly. In part, the precise way in which a general proposition is realised depends upon the particular individuals who are recruited to put the ideas into practical terms and these, it is found, do not all have the vision. Nevertheless, I believe that the School is now in a fairly strong position, which it will hold if it retains its purpose of doing only frontier research in carefully chosen fields. This is where guidance will be supremely necessary and where sound plans are dependent on the quality and perspicacity of the staff. Concentration on truly biological work will be important, especially at the most integrated levels of biology. Studies in population, behavioural and environmental biology should be of increasing significance.

D.G. Catcheside

31.x.72