

UNIVERSITY COURSES IN BIOLOGY

THE professors of botany of the United Kingdom held their third meeting at Bedford College, London, on March 7, 1964, under the chairmanship of Prof. W. O. James. The main subject for discussion was the present trend towards the formation of schools of biology as opposed to the traditional division into separate departments of botany, agricultural botany, zoology, etc. Active steps towards the formation of schools of biology were described both for a new university (East Anglia) and for an older university (Birmingham) where the departmental structure has long been established. The plans for the developments at East Anglia were explained by Prof. T. A. Bennet-Clark (East Anglia), who pointed out that the traditional division of biology into 'botany' and 'zoology' was ill-suited to deal with the active developments in genetics, physiology, virology, ecology and microbiology which call for a more unified approach to biology. There are clearly great advantages for an undergraduate to be able to study, for example, neurophysiology and plant physiology within the same school, rather than as apparently totally unrelated subjects within separate departments. Moreover, undergraduates regard it as an advantage that they do not have to choose on entry whether to become botanists or zoologists. A school of biology also provides favourable opportunities for co-operation between research workers in related fields, for example, plant and animal ecology. The larger size of a school renders it more practicable to provide the expensive equipment which is essential for the experimental aspects of contemporary biology.

In a new university it is much easier to establish a school of biology than in an established university where the traditional departmental structure is deep-rooted, and some speakers expressed pessimistic views regarding the prospects of forming schools of biology by the fusion of existing departments of botany and zoology. Nevertheless, important steps have been taken at Birmingham to bring about the closer integration of several biological departments, especially in undergraduate teaching. Prof. J. Heslop-Harrison (Birmingham) stated that all biology students will attend first-year courses of which the main themes are (a) cell biology; (b) organismal biology. The students are required to attend subsidiary courses in physics, chemistry and 'earth science'. Parts of the second-year courses are also common, with additional courses leading towards special honours degrees in botany or zoology, or to a general degree, in the third year. Proposals are also in hand for dealing with certain administrative matters in common for the several biological departments, including student admissions, time-tables and the ordering of equipment. Prof. Heslop-Harrison emphasized the economies which can be effected in staffing and teaching facilities by the closer integration of departments.

From the ensuing discussion it became apparent that common courses in biology have been instituted also in several other universities, including Glasgow, Nottingham, Oxford, Swansea and Aberystwyth. There appeared to be a good deal of support for the movement towards greater integration and co-ordination of undergraduate courses, but several speakers questioned whether the administrative fusion of departments of botany and zoology was either possible or desirable. Prof. D. Lewis (University College, London) pointed out that the retention of the departmental structure had advantages at the research-level, since it could form an effective unit for a close-knit research group. Moreover, the depart-

ment is a convenient unit for conducting postgraduate courses.

There was considerable discussion regarding the training of biologists in mathematics, physics and chemistry. This matter had been discussed at earlier meetings of the professors of botany, when there was general agreement regarding the urgent need for biologists to receive a more adequate training in mathematics and physics, especially at school-level. In order to rectify the present deficiencies in training in mathematics and physics, all first-year students at East Anglia are required to attend courses in these subjects within the school of biology itself. Prof. J. Dainty (East Anglia) maintained that there are great advantages in this arrangement, since a biophysicist or biochemist is able to appreciate the difficulties of biological students in dealing with the physical sciences. On the other hand, several speakers expressed doubt regarding the desirability of undergraduates receiving all their training in the physical sciences within a school of biology, and stated that they preferred students to receive their chemical training in departments of chemistry; they pointed out that there are dangers in dividing a university into a number of separate and self-sufficient schools, with little cross-communication between them. It was stated that in Scotland students frequently enter the university with less biological training than in England and Wales, but with a better grounding in mathematics and the physical sciences. Moreover, at Scottish universities students are not definitely committed to the biological or physical sciences in their first year, so that a certain number of students whose training at school was in mathematics, physics and chemistry may transfer to biology at the university.

Prof. H. Godwin (Cambridge) stressed the need for the universities to consider how to train teachers of biology, many of the present courses being aimed too much at training future research biologists. He also stressed the need for revision of the biological instruction in the teaching diploma courses conducted in university departments of education. Prof. Bennet-Clark pointed out that biology provides a good training for students to enter other fields, including the general Civil Service, industry and operational research. There is a need for a fourth year at the university when some biological students can widen their training by studying subjects such as economics and languages.

There was a lively discussion as to whether biology should be represented at all universities, including the new ones at present being established. Some speakers argued that many university botany departments are too small to make an effective impact and that botanical training should be concentrated in a smaller number of centres where they could be larger and better equipped. Other speakers stressed the importance of biology in general education and argued that courses in the subject should, therefore, be available at all universities; small botany departments are not necessarily inefficient if they specialize to some degree.

Prof. W. O. James explained the aims of the Biological Education Committee set up by the Royal Society and Institute of Biology to consider the improvement of biological teaching and make recommendations for action. During the next two years it will carry out a detailed enquiry into the actualities of sixth-form biology teaching and the present entry requirements of university biology departments and faculties. On the findings it hopes to base its recommendations.

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