

Appendixes included a policy statement on the finance of advanced sandwich courses issued by the Federation, the Ministry of Education's Circular 7/59 on Governing Bodies for Major Establishments, and a selected bibliography which is thoroughly representative.

The recommendations based on this survey emphasize that it is the function of governors to ensure that their college fulfils its role as an academic institution within the national and regional framework of further education. To do so involves strong links with industry, commerce and the professions; a constant awareness of the changing needs of their students; and adequate powers to implement the governing body's decisions. Governors nominated by special interests can and should bring their special experience or background to bear on the affairs of the college, but the handbook emphasizes that the governors serve to promote the interests of the college and that they should be aware that each college occupies a distinct place in the pattern of further education as a whole.

On size, the handbook suggests a membership of about twenty as ideal, and it should include members of the professions with which the college is mainly concerned and of the universities. The contribution which headmasters of secondary schools could make should be considered and provision for co-opting independent persons with special knowledge or experience, representative of ex-students and for

continuity is recommended. Stress is laid on the importance of the full implications of the recommendations of the Ministry of Education in regard to the powers of the governing body, and the handbook stresses the importance both of the power of governors being commensurate with the responsibilities they are asked to assume and of adjusting procedure to ensure the best possible use of the governors' time.

One meeting of two to three hours a term is suggested as covering most requirements, but apart from attendance at formal meetings of the governing body and its committees, governors can and should play a valuable part in the life of the college, and it is recommended that they should be encouraged to do so. Departmental advisory committees are usually appointed for each major discipline studied at a college, and these should consist of experts from industry or commerce, members of the governing body and the teaching staff and representatives of the appropriate professional body. They may also include H.M. Inspectors and should have room for co-opted independent experts. Close links between the advisory committees and the governing body are essential, but the constitutional position of advisory committees will vary according to the subject, and in fields which are undergoing continuous change, the establishment of permanent advisory committees may be advisable.

## SOUTH-EASTERN UNION OF SCIENTIFIC SOCIETIES

THE South-Eastern Union of Scientific Societies held its sixty-fifth annual congress in Ipswich, during April 22-25, under the presidency of the Earl of Cranbrook. The headquarters of the congress was at Ipswich School, where an exhibition of natural history was on display. A young naturalists' evening was arranged and questions from the audience were answered by a panel under the chairmanship of Maxwell Knight. Lord Cranbrook's presidential address to the Union was on "East Anglian Mammals", and he began by explaining that most of the area is highly cultivated, therefore the habitats are largely man-made. The red deer in East Anglia are possibly the progeny of escapes of those introduced from Scotland and are larger than those of the same species in Scotland, the increased size being due to an environmental change. Introduced roe deer are now flourishing in the Breckland.

Dealing with the seal population he said that both common and grey species occurred, a colony of grey seals being established during 1958 on Grove Sands, off Yarmouth, which are dry at the high-water mark. Ringing experiments are being made for recording movements of individuals, breeding places and the months on which the young of different species are born.

Lord Cranbrook said that for some obscure reason there appeared to be a natural barrier on the Essex-Suffolk border which prevented a number of mammals from crossing to suitable habitats in Norfolk and Suffolk. The distribution of the dormouse, horse-shoe bat and grey squirrel is limited to the south of the

Stour valley although the red squirrel is abundant in the coniferous woods of the Breckland. Coypu numbers increase and the animal has become a nuisance, damaging farm crops and banks of ditches and streams. Scientific investigation is necessary to find the steps to be taken for control. Defending the policy of the Forestry Commissioners in planting mainly conifers, he said that pine forests are useful for the preservation of mammals, badgers are increasing in numbers, and the pine marten, which is increasing its range, may be expected to reach the area in the near future. The question of the black rat race in the Fens needs careful consideration; there appears to be two varieties common in the south and east of England and their control may be necessary. He concluded his address by comparing the growth of teeth of the field and water voles. In the former the teeth continue to grow throughout their life, as much as  $2\frac{1}{2}$  in. a year, a corresponding amount being worn away by the hard food they consume. In the case of the water vole the teeth cease to grow when the animal is adult, calcification then aiding the resistance to wear.

The presidential address to the Archaeological Section was given by Mr. N. Smedley on "Archaeology in Suffolk". Speaking on the early investigators he mentioned the finding of an Acheulean implement by John Frere in 1797 and the scepticism with which the suggestion of man's existence before the present world conditions was received. He traced the development of the beaker pottery forms through the neolithic, bronze and iron ages. Roman times in Suffolk

showed a specialized form of kiln with no raised floor during firing. Mr. Smedley had supervised the reconstruction of a kiln of this type to prove the possibility of obtaining the necessary draught and temperature for the baking of clay vessels.

Mr. F. W. Simpson gave the presidential address to the Botanical Section, his subject being "Changes in the Suffolk Flora during the Past 100 Years". He emphasized the need for the conservation of habitats, pointing out that since Henslow's Flora was published in 1860 about 75 natives had become extinct, another 40 will soon be gone and others are in danger of such a fate. This is largely due to suitable habitats being reduced by human development for building purposes. The introduction of aliens may increase the number of species, and for an understanding of the general situation it is important that records of first and last appearances of species should be kept.

An appointment in America prevented Dr. R. G. West from delivering his presidential address to the Geological Section in person, but a recording was available on "Investigating Glacial and Interglacial Geology in East Anglia". Three methods have been used in the determination of the relations of the deposits: tracing the origins of the boulders by the identification of the materials; the study of the orientation of the boulders by the alignment of the long axes in undisturbed deposits; pollen analysis, the size and pattern of the pollen showing the genera and sometimes the species present, so from the vegetational sequence a climatic one could be deduced. Four main glacial periods may be correlated by these methods, the oldest Cromerian, followed in turn by Lowestoft, Gipping and Hunstanton. Implements occurs throughout, the most prolific deposit being the Hoxnian, between the Lowestoft and Gipping glaciations, where Acheulean specimens occur in a deposited brick-earth in conditions at least as warm as at the present time, the pollen grains including pine, birch and oak.

Mr. S. Beaufoy chose for his presidential address to the Zoological Section the subject of "Some East Anglian Butterflies". Illustrating his address with coloured slides of outstanding merit, he commenced by confirming the opinion that a natural boundary appeared to prevent species, including the Speckled Wood and Chequered Skipper butterflies, from occurring in Suffolk although recorded in adjacent

Essex. The life-history of the Swallowtail was described, a British sub-species occurring in Norfolk, the caterpillars feeding on wild carrot and, also, readily taking the leaves of the cultivated variety. The Silverwashed Fritillary is fairly common in woodlands, the eggs being deposited on moss during July and August, the caterpillar's first meal being its egg shell. It then hibernates and nothing more is eaten until the following spring when, by feeding on violet leaves, it completes its larval stage. The White Admiral, quite common in parts of East Anglia, deposits its eggs on honeysuckle, the caterpillars feed for about three weeks and then hibernate throughout the winter. The Purple Emperor was last recorded in 1919, the Large Tortoiseshell has become rare and an attempt to reintroduce the Large Copper has not been entirely successful.

Mr. J. E. Marston, the local secretary responsible for the arrangements of the congress, gave an illustrated talk on "Suffolk Ponds and Pond Animals". Tracing the life history of the mayfly he said that, although the life of the adult did not exceed 24 hr., the nymph takes three years to develop to this stage. The speaker wished for a full investigation into the breeding habits of the freshwater shrimp; preliminary researches at Belstead House have yielded some unexpected results.

Favourable weather conditions enabled the full programme of excursions to be carried out. The archaeologists visited Little Wenham Hall, Earl Stonham church and Helmingham Hall. As a prelude to Mr. Smedley's lecture a visit was made to Christchurch Mansion under his direction. The botanists made an excursion to study the early spring flora of the heaths of East Suffolk and the coast, at Woodbridge, Shingle Street, Butley and Chillesford. The geologists were conducted around the quarries at Great Blakenham and Creeting St. Mary to view sections revealing the effect of moving ice-sheets during the Glacial periods.

The general excursion was to Flatford Mill Field Study Centre, where the warden, Mr. F. J. Bingley, conducted the party around the house and grounds, explaining the aims and work of the Field Study Council.

The sixty-sixth annual congress of the Union will be held next year, during May, at Haslemere.

F. J. EPPS

## ACTINOMYCIN

**D**URING March 31-April 1 a conference was held, under the auspices of the New York Academy of Sciences, on "The Actinomycins and Their Importance in the Treatment of Tumours in Animals and Man". The conference consisted of three sessions concerned with: "Microbiological and Chemical Aspects", "Pharmacology and Experimental", and "Clinical". Prof. Selman A. Waksman was the general chairman of the sessions.

Actinomycin was discovered in 1940 in the laboratories of the Soil Microbiology Division of the New Jersey Agricultural Experiment Station, Rutgers University. It was isolated from a culture of an actinomycete, later described as *Streptomyces antibioticus*. Since then, numerous other forms of actinomycin have been isolated throughout the world.

The first was designated as A, and the subsequent ones as B, C, D, X, etc. Each of these consists of several chemical entities. Nearly fifty letters, numbers and subscripts have been used to designate the various entities. To clarify the nomenclatural problem, it has been suggested that names be applied to the various preparations only after the chemical constitution of each new form has been elucidated.

The actinomycins are produced by a variety of different species of *Streptomyces*. They represent a group of chromopeptide antibiotics which differ only at one site in the peptide portion of the molecule. The nitrogen source supplied to the medium influences greatly the quantitative and qualitative composition of the actinomycins. The chemical composition of the actinomycins can be controlled during bio-