

THE NATURE CONSERVANCY

IN view of the decision to establish a Natural Resources Research Council, which if the recommendations of the Slater Committee and the Trend Committee are followed would incorporate the present functions of the Nature Conservancy, the Conservancy's report for the year ended September 30, 1963, is of special interest*. The Conservancy believes that the confidence expressed in its previous annual report has been justified, and that it should be possible to secure that conservation as an aim is built into the policies of all-important national bodies and interests concerned—at least within Britain. It is less confident as to the elimination of acts and policies that utterly disregard or are opposed to conservation within the foreseeable future if present-day efforts are intensified: the establishment of a Natural Resources Research Council can scarcely fail to assist both ends. It could also contribute to the awakening in educational and biological circles as to the essential significance of conservation and ecological studies and encourage the co-operation that is of such vital importance.

The present report contains ample evidence of the importance of such co-operation to the promotion of which the Conservancy devotes much effort. About a third of the report is occupied by an account of scientific research in progress, on which the Conservancy spent £86,743 out of its total expenditure of £564,417 in the year ended March 31, 1963. Of this figure, £65,758 was for grants for research, training and studentships, £6,035 for special surveys, etc., £10,996 for the Unit of Grouse and Moorland Ecology, and £3,954 for research on grey seals and salmon. £334,177 was expended on salaries, superannuation, etc., £55,105 on general administration, £46,054 on rents, rates, maintenance, etc., and £41,339 on technical and general equipment. Staff in post at September 30, 1963, totalled 322 of whom 144 were scientists.

Five new research grants, totalling £5,636, were approved during the year and 16 existing grants were renewed or extended, bringing the total expenditure on grants to £47,202. A new contract was approved with the Devon Naturalists' Trust for investigations on the large blue butterfly (*Maculinea arion*) and three contracts with the British Trust for Ornithology for research on bird population and migration were replaced by a single interim grant pending submission of a comprehensive application for a long-term grant. Much of the Trust's grant-aid work is an essential complement to the Conservancy's own research work into the effects of toxic chemicals in wild-life; for research grants in this field an additional £4,000 is being provided in the financial year beginning April 1964.

Reference has been made elsewhere to research on toxic chemicals and wild-life (see *Nature*, 201, 954; 1964). Apart from this, at Merlewood Research Station a major theme of woodland research was the study of the circulation of mineral materials within the woodland ecosystem. The main fungal investigations of species succession are reaching their final stage. At Moor House, for the first time, information is available on the numbers of sheep on the Reserve, their movements and the account of their grazing activity: investigations on the growth of moorland plants are yielding fundamental information on the environmental requirements of plants growing on plots of low mineral content as well as emphasizing the impor-

ance of the nutrient content of rain for plant growth on blanket peats.

The investigation of variation in the nutrient content of trees, between trees and at different seasons in oak woodlands continued. Since April 1962, measurements have been made of the quantities of water and certain dissolved nutrients falling as rain and flowing down a stream draining a catchment of 200 acres. While the main object of the experiment on the productive capacity of blanket-peat vegetation, commenced in 1958, cannot be attained in less than 10 or 15 years, measures have been obtained of the rate of decomposition of cotton-grass litter, the annual net fixation of mineral nutrients in the aerial parts of the plants, and the growth rate of ling during the first five years after removal of all vegetation.

At Furzebrook Research Station, the investigation of the ecology of southern heaths continued and work on distribution of many species in heathland with correlated observations on height, slope, soil, microclimate and vegetation is reported as being well advanced. Studies on the seasonal growth-pattern of salt-marsh plants and on the seasonal pattern of salinity changes in *Spartina* marsh were made in Poole Harbour, as well as surveys of Bronsee Marsh. Physiographical work continued at Bridgewater Bay and Dawlish Warren and included also a study of the blow-outs of Braunton Burrows Dune system, ecological studies to determine the soil and vegetational changes during the year and the seasonal nutrient requirements for certain plant species, and an investigation of the Pleistocene chronology of the beach and adjacent coast-line at Orfordness.

An examination of the invertebrate fauna of open-ground habitats is at present concerned with the grass heaths of the Suffolk Breckland, and work was commenced on recording the colonization and succession of invertebrates in a dyke on Woodwalton Fen National Nature Reserve, which is not connected to the main dyke system. Quantitative changes in the vegetation as a result of sheep grazing are being studied at Old Winchester Hill National Nature Reserve and investigations of seed and litter fall in oakwood are being continued at three levels at Yarnar Wood. Investigations during the past two years into the mineral nutrition of seedling Scots pine show that at the nutrient-levels encountered in most Scottish hill peats the development of mycorrhizal roots is vital for unchecked growth; in continuance of the assessment of vegetational productivity on Rhum, completion of the map of vegetation below 1,500 ft. is expected shortly. Investigations by the Unit of Grouse and Moorland Ecology indicate that it may be necessary to modify the predictions that variations in the summer growth of the principal food plant, heather, give rise to corresponding fluctuations in red grouse breeding densities in the same area, and that variations in the winter die-off of heather are correlated with the breeding success of grouse in the same areas in the succeeding summer. The detailed study of the grey seal colony in Orkney continued and a study was begun of the incidence and effects of disease among pups in the breeding colonies of the Orkney and the Farne Islands. The study of the survival of the different classes of animal in a population of short-tailed voles (*Microtus agrestis*) continued at the Carron Valley, Stirlingshire, and investigations are being carried out on the remarkable increase and spread of the pine marten.

At Bangor, particular attention is being directed to the influence of climate and soil on the nature of plant com-

* Report of the Nature Conservancy for the year ended 30th September, 1963. Pp. vii+164+12 plates. (London: H.M.S.O., 1963.) 11s. 6d. net. (See also p. 1 of this issue of *Nature*.)

munities, the density of animal populations and the yield of living material from the areas studied: a main problem has been that of the soils of a vegetation complex at Moel Eilio in the Conway Valley, where a mosaic of brown earths and peaty podzols occurs. The study and characterization of clay minerals of Snowdonian soil clays has continued, with particular emphasis on those derived from pumice tuff, and an investigation has been started on the mineral nutrient turnover in selected mountain grassland ecosystems, as well as a long-term investigation into the effects of different sheep-population densities on the productivity of a mountain grassland community at Cwm Dyli.

In conservation a new co-operative approach was made to the chronic problems of the Norfolk and Suffolk Broads and a similar type of approach is being made to the problems of the Breckland and of the Purbeck area. With the approval of the management plan for Knocking Hoe and the revised plan for Roudsea Wood, 29 out of the 52 English reserves are now managed on approved plans, 24 out of 29 Scottish reserves and 10 out of 24 Welsh reserves. Revised lists of notified 'sites of special scientific interest' were approved for Cumberland, Lancashire, Glamorgan, Monmouthshire, Breconshire, Flintshire and Montgomeryshire. However, reference is made in the report to the danger which service requirements offer to several such sites, as well as to the concern for the New Forest and other areas arising from large-scale pollution from the proposed 2,000-MW power station at Fawley.

The reports on the conservation work in different parts of Britain contain much of scientific interest and this is no less true of the work of the Scientific Advisory Services. Some reference has been made elsewhere to this work in respect of toxic chemicals and water resources (see *Nature*, 201, 954; 1964), and the value of this work is further illustrated in the Conservancy's second major scientific monograph, *The Geology of Moor House: a National Nature Reserve in North-East Westmorland*, issued in February 1963 (*Nature*, 199, 941; 1963), and in work with regard to the protection of birds: it was on the Conservancy's advice that the Home Office decided that oyster-catchers should not be controlled by shooting unless common-netting failed.

The report includes some account of the Conservancy's educational work, including the successful conferences to discuss proposals for the experimental use of Ainsdale Sand Dunes as an educational nature reserve: a section on international and overseas activities indicates the growing extent of such spheres of action. The Conservancy is called on to participate in such programmes as the African Special Project of the International Union for Conservation of Nature and Natural Resources, the European and North African Marshlands project and the planning of the International Biological Programme. The Conservancy is also represented on a Committee of Experts for the Conservancy of Nature and landscape, which was set up by the Council of Europe.

SCIENCE IN LOCAL GOVERNMENT

THE growing demand for scientific advice in local government has essentially been brought about by four major factors: (1) new materials arising from industrial development; (2) increasing appreciation on the part of responsible local government officials of the assistance that the scientist can give; (3) the availability of new methods for detecting harmful contaminants and assessing quality; (4) the use of methods based on modern techniques in place of traditional ones. That this is so is well demonstrated by the annual report for 1962 of the Scientific Adviser to the London County Council*.

The report describes the work of the Scientific Branch of the Public Health Department, the services of which have now been made available to the Metropolitan borough councils. Moreover, on the retirement of their public analyst, two of those boroughs have arranged for the food and drugs analysis work to be transferred to the Council's laboratories, and a public analyst has been appointed for these duties as well as the work on food and drug purchases by the Council. The staff of the Branch now totals 99, including 38 graduates, 54 ancillary staff and 7 in a clerical section: a list of scientific staff is attached to the report. Samples handled reached a record of 66,463. Many analytical reports entailed no laboratory work, and besides attendance at scientific committees and the preparations of specifications, the staff was called on for work on new methods of analysis and new equipment.

The work of the Scientific Branch of the Council's Public Health Department is carried out at the headquarters laboratories at the County Hall and in laboratories at the Northern and Southern Outfall Works at Beckton and Crossness, respectively. Some 22,265 air-safety tests were made at the Northern Outfall Works Laboratory, where investigations were made in the possible use of an industrial sludge and into the efficiency of the precipitron filters at the power house; and a gas chromatograph was constructed to use a katharometer of

the 'Pretzel' cell type for detecting methane. A survey was also made of methods for determining nitrate in effluents. At the Southern Outfall Works Laboratory, dissolved oxygen and sulphide relations in Thames water were investigated, and, besides the attention regularly given to the condition of the Thames, waters from tributaries of the Thames were regularly examined by the Branch.

Much attention was given to paints and building materials, while besides foodstuffs generally, including tender samples, deliveries and complaints, specimen meals served to school children were analysed to enable the organizers to check the nutrient values. Regular observations were made of the degree of air pollution at 23 sites, and investigation of the concentration of sulphur dioxide at a sixth-floor flat 140 ft. from the chimney of a boiler house showed a concentration of 55 per cent above the 'smog'-level during at least 40 per cent of a five-day period when the wind was in the right direction. The building of tall blocks within range of power-station chimneys thus presents a special problem and more information is needed. Methods for detecting and measuring traces of radioactive matter were further developed, and the Branch co-operates with other departments to ensure efficient water treatment in the Council's bathing ponds and swimming pools, while weekly tests were made of the atmospheric conditions in Blackwall and Rotherhithe Tunnels when the Tunnels were carrying heavy traffic.

Work was extensively undertaken for the London Fire Brigade, and fabrics were tested for flame-proof properties, wall-surface materials for the rate of flame-spread and rubber hose for its quality and suitability for use in the fire service. Besides regular examination of samples from steam-raising plants, the use of 'Calgon' or 'Micro-met' for inhibiting scale-formation in domestic hot-water systems continued with satisfactory results. Dosing hot-water heating systems with dichlorophen at 20 p.p.m. proved completely successful in destroying colonies of sulphate-reducing organisms in both small and large

* London County Council. Public Health Department: Scientific Branch. *Annual Report of the Scientific Adviser, 1962*. Pp. 78 + 4 plates. (London: London County Council, 1963.)