

developed countries in tropical regions. A review is to be made of the results of the Agency sponsored research on calcium-47, and work on the calibration and standardization of measurements of uptake of radioiodine by the thyroid gland is to continue. The distribution of calibrated radionuclide samples will be extended during 1963 and new calibration methods will be developed. Participation in the international intercomparison measurements of radionuclides organized by the International Bureau of Weights and Measures will continue. The comparative study of methods used in different laboratories for the chemical analysis of nuclear materials; the determination of trace elements in the marine environment; and in mass spectroscopy, the programme of the application of stable isotopes to analyses by the isotope dilution method, and the direct analysis by the mass spectrograph of trace elements in sea-water and nuclear materials, are some of

the investigations to continue or be commenced during the year.

There are indications that during 1963 a number of nuclear facilities will be subject to Agency safeguards, and plans are being made to buy the essential minimum of portable equipment needed for the inspections. The general problems of emergency conditions in the event of a serious accident in nuclear installations are to be reviewed and the Agency's plans for the provision of international emergency assistance to member states are to be extended. Increased attention is to be directed to the development of techniques to deal with the disposal and management of radioactive waste, atmospheric pollution, and the transport and distribution of radioactive material. In this connexion, any necessary revision to the Agency's regulations for the safe transport of radioactive materials will be considered.

S. WENTROUB

## FOREST RESEARCH

THE report on forest research for the year ended March 1961\* shows the wide range of work being carried out by the Forestry Commission Research Staff and for the Forestry Commission, with assistance by workers at universities and other institutions.

Much more attention is now being paid to the forest soil. Drainage is often a great problem. Wet soils may have a severe effect on tree roots by inhibiting growth and also by making the trees vulnerable to windblow. With the machines now available, the initial drainage system for a bare area may not be a very difficult task but a great deal more information is required on the depth drains should be on a given site and how far apart they should be spaced in order to provide reasonable conditions for afforestation purposes. The subsequent problems include the maintenance of the drains and, unfortunately, there is quite a lot of evidence in Britain of neglected drains. However, ways and means for ensuring the provision of good drainage in forest areas are being investigated. Nutritional work is also being undertaken. The analysis of foliar samples from fertilizer trials is providing data on nutrient deficiencies. Another series of experiments is attempting to elucidate the role of mites in the breakdown of forest litter.

For the first time a report on work study is included. The activities of the section dealing with this cover investigations on tools, equipment, machinery, piecwork and other matters affecting production operations at all levels.

A prototype direct-reading calliper has been developed and trials of this instrument have demonstrated that enumeration work can be speeded up and so costs are reduced. As the measurements are transferred directly on to a tape by a punch system, errors in recording can

be avoided. Two plates show some details of this calliper but no details are given of its weight. At least two other types of self-recording callipers are in use in Scandinavia.

In the report of the New Zealand Forest Service's Forest Research Institute for 1961 †, mention is made of the new requirement that although officers out with the Research Division are still encouraged to conduct their own research projects, these must be approved by the Director of Research. This is a wise ruling. The individual is not thwarted, co-ordination is possible and one of the great drawbacks to individual research in forestry will be avoided, namely, the discontinuance of an experiment through the transfer of an officer to another territorial charge.

It is good to read that one of the planned developments is in physiology and the reason given is "because it is basic to an understanding of many problems in the fields of silviculture, forest-tree improvement and forest pathology". Another development is the appointment of a "silvicultural economics" team with the object of constructing financial yield tables for exotic species. This shows a realistic approach to land-use evaluation and will form a proper basis for the assessment of the relative merits of agriculture and forestry whenever such is required and it is expected to be more needed in the future. In addition, it is felt in New Zealand that a new approach is required in forest economics which, for so long, has been conditioned by European practice.

There is nothing perfunctory about the forest research described in this report. Indeed, the reader is convinced that forest research in New Zealand is well planned and vigorous, and that, in addition to trying to solve present-day problems, it is also forward-looking in a very commendable way.

C. J. TAYLOR

\* Forestry Commission. Report on Forest Research for the Year ended March 1961. Pp. ix + 209 + 12 plates. (London: H.M.S.O., 1962.) 14s. net.

† New Zealand Forest Service. Forest Research Institute, Rotorua. Report for the year 1961. Pp. 75. (Wellington, N.Z.: Government Printer, 1962.)

## ASPERGILLUS FLAVUS AND GROUNDNUT TOXICITY

IN 1960, large numbers of young turkeys in Britain died (and, later, other domestic birds and farm animals were shown to be affected) for a reason that was at first unknown and was called 'turkey X disease'. This was later shown to be due to the presence of a toxic batch of groundnut meal in their 'feed'. As a result of this, a number of Government and other research laboratories studied this toxicity as a matter of urgency. Real progress became possible with the demonstra-

tion that the toxin was not intrinsic to the groundnuts themselves but was the product of a mould (a strain of *Aspergillus flavus*) growing on them. This toxin-producing mould is widespread, and it was not surprising, therefore, that the toxin was identifiable on some samples of groundnuts or meal from all the main producing areas.

Because the problems posed overlapped the responsibilities of a number of Government departments, an