

### The Imperial Forestry Institute.

SOME comment is called for on the note on the Imperial Forestry Institute which appeared in NATURE of Jan. 15, p. 96, and which is likely to produce a wrong impression in the minds of those unacquainted with the facts. With reference to a proposal to spend a sum of £75,000 on the erection of new buildings to accommodate the Imperial Forestry Institute at Oxford, the following observation is made: "On the face of it the scheme appears to be a laudable one. Nevertheless, it would seem to demand further careful consideration if this money or the bulk of it is to be provided from the Treasury." As there has been no suggestion that the Treasury should make any contribution towards the scheme, the fears expressed in regard to national expenditure may in this instance be set at rest.

The note concludes with the following passage: "Two points appear to demand a public and un-biassed inquiry before the Government is committed to the scheme; they are: (1) Are not the existing schools of forestry capable of giving all the education required, both up to the degree and post-graduate, and to undertake research? (2) Is it advisable to shut up forestry education in a water-tight compartment?" The writer is apparently not aware that such an inquiry was carried out a few years ago by an Interdepartmental Committee on Imperial Forestry Education, which issued in 1921 a report published as Command Paper 1166. In this report both the above questions are definitely answered in the negative. In proposing the establishment of a central institution for higher training and research in forestry, the Committee made it clear that there was no intention of interfering with the work done by university schools of forestry, and provided the training of these was maintained at a required standard, it recommended that selected students from these schools should be eligible for admission to the central institution. The Committee may be presumed to have conducted its inquiries in an impartial manner; it visited the universities of Oxford, Cambridge, Bangor, and Edinburgh, and also took evidence from other universities, as well as from institutions and societies interested in forestry, and in selecting Oxford as the site of the future forestry institute we may assume that it selected that place which it considered most suitable for the end in view.

Apart from the Interdepartmental Committee, the question was carefully considered by two separate Empire Forestry Conferences, one held in London in 1920 and the other in Canada in 1923. At both conferences the inadequacy of the existing arrangements for higher training and research in forestry was commented on, and the necessity for establishing a central institution for the needs of forestry in the British Empire was urged. The Interdepartmental Committee's recommendations were endorsed by the second Empire Forestry Conference and also by the Imperial Economic Conference held in London in 1923. The Imperial Forestry Institute was accordingly established at Oxford and started work in October 1924. Should any readers of NATURE be interested in the progress actually made so far, I shall be pleased to send them a copy of the second annual report.

Imperial Forestry Institute,  
Oxford, Jan. 19.

R. S. TROUP.

If under "Treasury" Prof. Troup includes the Colonial Office and Forestry Commission (the latter two offices defraying the bulk of the expenses of the

Institute at present), the tax-payer, whether in Britain or overseas, will be relieved to have the assurance.

Prof. Troup's somewhat *ex parte* account of the proceedings leading up to the inauguration of the Institute in 1924 has in one form or another appeared on several occasions in the Press. He does not, however, appear to realise that a growing body of scientific opinion is at the back of the representations which the authorities of the Universities of Cambridge and Edinburgh placed before the Secretary of State for the Colonies and members of the Forestry Commission on the subject of the concentration of (State-subsidised) post-graduate forestry work of all kinds at one university. The authorities of the two universities stated quite definitely that they had no intention of giving up the post-graduate courses they had already inaugurated, and all they asked for was an 'open door.' It is understood that the Secretary of State accorded a sympathetic hearing, and intimated that whilst nothing could be done at the moment, the experiment was only made for a five-year period and would be open to a reconsideration at the end of the period.

THE WRITER OF THE NOTE.

### Ionisation in Hydrogen Chloride Vapour.

BEFORE a meeting of the American Physical Society in April 1925, I reported some preliminary results of an investigation of ionisation by electron impact in hydrogen chloride vapour at low pressures, using the familiar method of mass spectrum analysis to identify the ions produced. I had observed in large numbers both positive and negative ions of which the ratio of mass to charge was about 36 times that of the hydrogen nucleus. At relatively high pressures I had also detected positive ions of  $m/e$  about 72 times the same unit. At all pressures the ions  $H^+$ ,  $H_2^+$ , and  $(H_2O)^+$  had been present, although in general there were fewer of these than of the other types.

Since then the study has been extended, using a new apparatus of higher resolving power. The ions at '36' were resolved into four separate types of positive ion, namely:  $(Cl^{35})^+$ ,  $(HCl^{35})^+$ ,  $(Cl^{37})^+$ , and  $(HCl^{37})^+$ ; and only two types of negative ion, presumably  $(Cl^{35})^-$  and  $(Cl^{37})^-$ . The ratios  $(Cl^{35})^+/(Cl^{37})^+$ ,  $(HCl^{35})^+/(HCl^{37})^+$ , and  $(Cl^{35})^-/(Cl^{37})^-$  were equal, within the limits of error, to the computed abundance ratio of the isotopes based on the atomic weight of chlorine. The heavier ions previously mentioned were not observed at the lower pressures necessarily used in the new apparatus, and therefore could not be precisely identified.

Comparisons of the relative numbers of the different ions under many different conditions of pressure, energy of striking electrons, etc., have led to the conclusion that the only type of ion produced by an impact of an electron of between 4 and 75 volts energy on a hydrogen chloride molecule is  $(HCl)^+$ . This is the type of ion to which corresponds the ionisation potential of about 13.8 volts observed by others.

A widely held conception of ionisation by impact in hydrogen chloride assumes that the primary process consists of the formation of  $H^+$  and  $Cl^-$  ions. The conclusion reached in these experiments is contrary to this assumption, though it was difficult to disprove the possibility, since both  $H^+$  and  $Cl^-$  ions were produced. However, (1) it was observed that at low pressures there were always more  $H_2^+$  ions than  $H^+$ ; (2) neither of these showed any reproducible quantitative relationship to the  $(HCl)^+$  ions; (3) their number was always small compared with the latter, except when the apparatus had been evacuated only recently; and (4) they diminished and finally disappeared with