

and business life. The work which the Association is doing to bring home to the ordinary man the great debt which he owes to the scientific worker entitles it to the support not only of scientific men but also of the general public, and Lord Clarendon suggested that this is one of the most important aspects of the Association's work. Referring to the efforts of the scientific worker in the matter of health, nutrition and disease, he pointed out that much as we already owe to the discoveries of science, much more could be done if the requisite funds were available. Essentially the eradication of malaria, nagana, East Coast fever, tuberculosis in cattle is a matter of funds, lack of which prevents the carrying out of measures already known to be effective.

ACCORDINGLY Lord Clarendon argued that the support and fostering of scientific research should not be limited by national frontiers. The best utilization of national wealth involves the utilization of discoveries made elsewhere. Many scientific problems have been solved by international co-operation, and while the influence and guidance of politicians and financiers may still be necessary, we can also look forward to a brighter future in which a large proportion of the troubles of the world will be treated as scientific problems and dealt with on this basis by international congresses of men of science. In furthering this ideal, the diffusion of a knowledge of science and of the world's debt to scientific investigation is of vital importance. In a reference to the place in science of the amateur, Lord Clarendon suggested, contrary to the usual belief in scientific circles, that specialization has so handicapped the work of the amateur, at any rate in the physical sciences, that his contribution is now becoming insignificant, that the growth of leisure would greatly increase the number of amateur workers, particularly in the conception of leisure as "the opportunity to work hard at things which really interest one".

Research and Finance

A MEMORANDUM on the development and finance of the Department of Scientific and Industrial Research was discussed in a leading article of NATURE of July 11 last. The view appears to prevail that this memorandum embodies the considered views of the Parliamentary Science Committee; but this is not so. The history of the memorandum is as follows. Some three years ago the British Science Guild and the Association of Scientific Workers appointed a joint committee to explore this question. Considerable material was gathered, and certain progress was made. Eventually the two bodies referred the subject to the Parliamentary Science Committee in 1935, together with the results of their labours. Obviously it was desirable that this material should be collated, brought up to date, and even amplified. This was done by a distinguished scientific worker at Cambridge. His preliminary draft was circulated to the executive of the Parliamentary Science Committee last March. Before proceeding to consider the memorandum in detail, the executive deemed it expedient

to refer it to the councils of its constituent bodies and to the individual members of its own general and executive committees to secure their considered views in writing. This has proved to be a leisurely process, as some councils meet at infrequent intervals—and not at all during high summer! A considerable volume of constructive and polemical criticism has been received; and an amended memorandum is now being prepared at Cambridge incorporating many of the suggestions received. It appears, therefore, that the Parliamentary Science Committee has not yet settled down to work, as a deliberative body, on this memorandum. In a sense, the committee may be said to have given it a 'first reading', and committed it to a select committee for consideration before proceeding to the 'second reading' and subsequent stages. The 'Parliamentary draftsman' has to finish his labours before the Parliamentary Science Committee can claim any credit for accepting the result of his public-spirited labours—or for rejecting the memorandum on 'third reading'.

Plant Organisms in Permanently Frozen Subsoil

SOME rather sensational newspaper reports on the discovery, by Russian scientific workers, that organisms which had remained frozen for thousands of years in Siberian soils can be revived (see NATURE, Sept. 26, p. 540), is now followed by an account on this work, carried out by P. Kapterev in the Amurland, at lat. 53° 58' N. (*Comptes rendus, Academy of Sciences, Moscow*, 3, No. 3; 1936). The depth of the permanently frozen layer at that place has not been definitely determined, but is estimated at about 60 metres. The upper 2.5 metres of the soil may thaw during summer, and below that level the permanently frozen layer begins. This frozen subsoil is loamy and includes some peaty intermediate layers, which probably were formed at the bottoms of pools. Samples of peaty material taken at depths up to 4.25 metres, when placed in flasks with distilled water, invariably developed a fairly rich flora of algæ belonging to some twenty genera such as *Stigocleonium*, *Mougeotia*, *Oedogonium*, *Closterium*, *Cosmarium*, *Oscillatoria*, *Phormidium*, *Navicula*, *Gomphonema*, *Anabaena*, *Lynobia*, *Chroococcus*, *Ulothrix*, *Chlamydomonas*, etc., as well as fungal hyphæ and green stems of a Hypnaceous moss. In one sample, a crustacean, *Chydorus Sphaericus* (Cladocera) has been found. The possibility that these organisms were introduced into subsoil by water percolating from upper layers is rejected, since the permanently frozen subsoil is practically impermeable to water. Nor can it be suggested that the cultures were infected accidentally, since it would be difficult to expect then a whole complex of organisms, which moreover varied with the depth of samples. It is considered, therefore, that the organisms actually came from the permanently frozen subsoil. The age of the layers from which the samples were taken is estimated as possibly from one to three thousand years. Carefully planned investigations of still deeper layers are being continued under the auspices of the Moscow Academy of Sciences.