undulations have been observed by Helland-Hansen (see NATURE, Jan. 1, 1927, p. 18) in the North Atlantic. A rise and fall of both temperature and salinity was very marked at depths between 100 and 250 metres at a position shown by an anchor on the track chart (Fig. 1) where the depth was 4350 metres. These undulations appeared to be composed of waves having a period of about 12½ hours and of shorter waves with a period of 2¼ hours, as a gross result of which the temperature at 100 metres varied between *circa* 22°·2 C. and 24°·6 C.

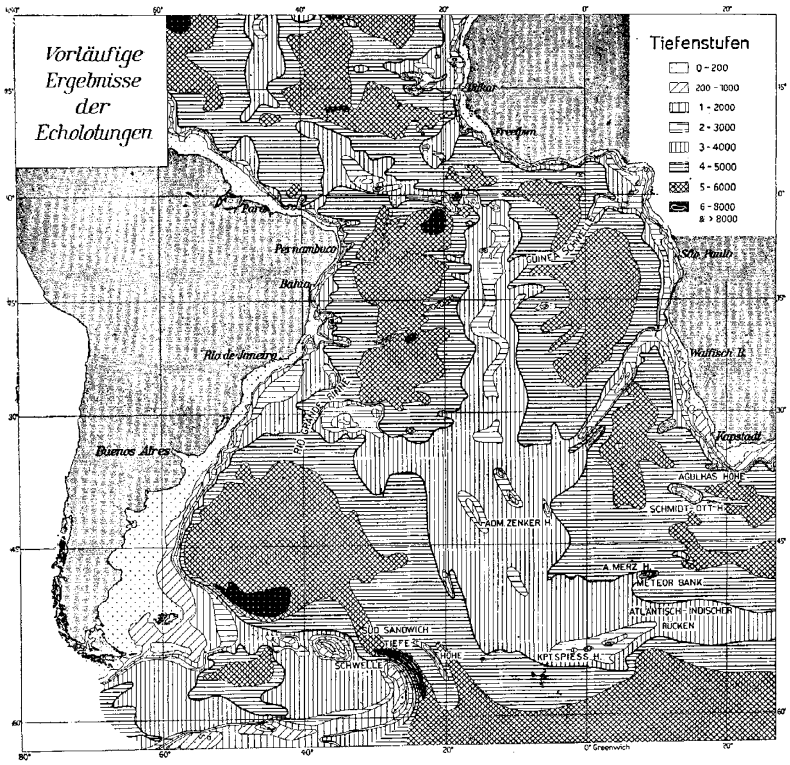


FIG. 2.—Depths of the South Atlantic Ocean from the preliminary results of sonic soundings by the *Meteor*. From "Die Lotungen des *Meteor* und die Nautik."

A separate contribution by H. Maurer[2] deals with the preliminary results of the bathymetric survey in which sonic and direct sounding was employed (Fig. 2).

[2] "Die Lotungen des *Meteor* und die Nautik." *Ibid.* Nr. 7/8.

## Larch Canker in Britain.

THERE is probably no more striking example of the assistance which the botanist, and more especially the forest botanist, can render the forester than that afforded by the history of the larch canker in Britain. The introduction of the European species of larch (*Larix europœa*) in the eighteenth century was followed by plantings, for the time, on a considerable scale. The fact that, owing to the durability and value of the wood, all sizes from an early age (*e.g.* for sheep-net stakes) are utilisable, resulted in the species being planted without reference to the kinds of soil it required, or, as important, in the absence of any working knowledge of the necessary thinnings which the young plantations required. Old ideas and opinions, founded on premises which lack the necessary scientific study of facts upon the ground, are difficult to eradicate.

The appearance of the larch canker (*Dasyscypha calycina* Fuckel) in Britain and the devastation caused by this fungus in larch woods led to a scare in the later years of the nineteenth century. In some cases woods were so seriously infested as to justify their removal *en bloc*. Many others which with the knowledge of the disease now available could have been left standing, the seriously attacked trees only being felled, were cut down. Worse still, larch grown in mixture with Scots pine and spruce were ruthlessly cut out under the mistaken idea that the fungus infection would spread. In other words, that most disastrous occurrence in forestry, a 'species scare,' took place. A much saner view of the position was taken during the early years of the present century. The disease was studied out in the woods, and with the fuller knowledge obtained, many owners ruefully recognised that some of their older standing woods had been reduced in value by 50 per cent. or more owing to the wholesale removal of the larch a score of years or so earlier.

Two primary causes for the widespread attack to which the larch was subjected were established: the unsuitability to the species of many of the soils or localities in which it was planted, and the excessive density of the unthinned plantations. Both were undoubtedly contributory causes to the universal spread of the disease. It was established at the same period, however, that infected trees did not necessarily succumb to the attack; and that a young plantation of a few years' standing in which a considerable portion of the trees were infested would not die. The removal of the worst of the diseased trees should be carried out, the rest being left and kept under observation. There are instances where such plantations have completely recovered.

A description of this fungus and suggestions for its control are discussed in a *Leaflet* (No. 16) recently issued by the Forestry Commission. It is pointed out that the European larch is chiefly affected, the more recently introduced Japanese larch (*Larix leptolepsis*) being seldom attacked; on the other hand, the West American larch (*Larix occidentalis*) appears to suffer even more than the European.

Under methods of control, the author of the *Leaflet* lays down, quite correctly, the necessity of not planting larch upon unsuitable soils. The dictum applies equally to many species, but is especially necessary in cases where a serious disease has made its appearance in the country: since the planter not only risks losing his own plantation, but his mistake also leads to the infection of neighbouring ones. On the subject of spacing, the author perhaps follows unconsciously the present policy of the Forestry Commission and advocates, in order to reduce the possibilities of attack, wide spacing in the formation of the plantations: "Never less than four and a half feet, or on the better sites five and a half to six feet." This opinion is widely held in Great Britain at the present day. But it appears to be based on two fallacies. First, owing to the fact that the correct mode of thinning larch was not understood as practised in the

past, the plantations became congested, damp, and airless, and bad attacks of canker followed. Secondly, the larch has always been raised in plantations from planted-out plants. Saving one or two instances only, no larch wood has originated from natural regeneration or from sown seed in Great Britain. The *Leaflet* in question, and many other writers, appear to assume that larch will never be raised in dense natural woods in Britain. It appears at least doubtful that this assumption is likely to prove justified. As the *Leaflet* shows, the life history of the fungus and the conditions it requires to thrive in are now available to all. Many of the mistakes of the past are thus avoidable. Once the correct methods of thinning are applied, it is reasonable to surmise that it may be possible to raise larch in Britain as well as other species in dense young woods and thus produce a finer quality of timber.

## Activities of Czechoslovak Engineers.

THE magnitude of engineering undertakings in Czechoslovakia is not generally realised. The publication of the "Almanac" of the seventh conference of Czechoslovak Engineers and Architects (a profusely illustrated quarto volume of 432 pages) directs attention to the achievements of its members. The greatest Czechoslovak engineering concern, the Škoda works at Pilsen, occupies an enormous area, and the history of its precursor, the firm of Laurin and Klement, shows what rapid strides have been made in the construction of engines and motors for various purposes.

In the conference proceedings three authors dwell upon the extension of the use of power alcohol, whilst other chemical engineers foreshadow the use of both old and new poison gases in future warfare.

Sugar is an important item in their export trade, and an account is given of the latest practice at a number of well-known factories. The report from the Semčice Experimental Beet-growing Station also gives an idea of the progress made in improving both the crop and the sugar content of the beets.

Mladá Boleslav, in north-east Bohemia, where the conference met, is near the centre of the gem, glass, and textile industries. Reference is made to all these in the "Almanac," which gives descriptions of the garnet-cutting industry at Turnov, the glass-making at Jablonec, and the textile trade of Liberec (Reichenberg).

Another subject which received attention is long-distance telephony. The construction and equipment of stations for this work and the essentials for good transmission of speech by cable or radio were described, together with an account of the transmission stations of Prague, Brno, and Bratislava.

Technical education has not been neglected in Czechoslovakia, and the principals of a number of special schools indicated to the conference the lines upon which their work is carried on, and make mention of the good results that have accrued.

An interesting feature of the conference was that prominent industrialists and statesmen were invited to suggest in which directions they considered there was scope for improvement and further development in engineering activities and to indicate where engineers had neglected to make the necessary developments in the past. Several instructive replies are printed in the proceedings, and it may be added that they are applicable to other countries besides Czechoslovakia.

## University and Educational Intelligence.

CAMBRIDGE.—Dr. M. Dixon, Emmanuel College, has been appointed University lecturer in biochemistry.

Under the will of the Rev. J. H. Ellis a sum of about £65,000 will shortly pass to the University. The Council announces that it has given preliminary consideration to the possibility of finding from this and other sources means to provide for a substantial portion of the new University Library and for new lecture rooms for the literary faculties. A detailed report will be made next term.

Sir Humphry Rolleston will represent the University next May at the tercentenary celebration by the Royal College of Physicians of the publication of William Harvey's book, "De motu cordis."

LONDON.—An offer by the joint committee of the Paviors' Company and of the Institution of Municipal and County Engineers to establish a part-time chair of highway engineering in the University for post-graduate students has been accepted.

OXFORD.—Cecil Graham Traquair Morison, reader in agricultural chemistry, has been elected to an official studentship at Christ Church.

John Carew Eccles, Rhodes Scholar from Melbourne, has been awarded the Francis Gotch Memorial Prize and has been elected to a junior research fellowship at Exeter College.

John Hulton Wolfenden, Procter Travelling Fellow of 1924–5, has been appointed lecturer in chemistry at Exeter College.

Stanley Carson, Fellow of New College, has been elected a member of the Committee of Geography.

NEW science laboratories at the City of London School were formally opened on Dec. 20 with a reception by the chairman of the school committee (Mr. Cecil J. Jennings) and the headmaster (Rev. Dr. Prebendary Chilton), followed by a conversazione to which 1500 guests were invited. The site of the school on the Victoria Embankment is probably as fine, and certainly as valuable, as that of any school in the kingdom. The penalty of eminence in this case is the difficulty of extension. The present alterations have been carried out at a cost of £22,000, and include four class rooms, a large lecture hall, a new dining-room, an armoury, and the remodelling and refurnishing of the whole of the top floor for the teaching of science. All this has been accomplished without encroaching to any appreciable extent on the playground space. The new extensions were rendered necessary by recent movements in the direction of teaching science on a broader basis and to larger numbers of non-specialists. The school was one of the first to introduce natural science into its curriculum. This teaching was by 'block' lectures covering a wide range and taking in the whole school, but with very little opportunity for practical work. It has been the fashion of late to depreciate this kind of teaching; nevertheless, the fact remains that many old citizens who became famous in after life had their enthusiasm aroused and their imaginations stirred by these lectures. This, rightly or wrongly, was followed by a period of increasing specialisation for the comparative few and concurrent limitation of opportunity for the rest. The new movement is towards a broadening of the basis for all. General science, including biology, will be taught on the classical side, physics-with-chemistry on the modern side, while on the science side limited specialisation in physics, chemistry, and biology will be possible.