

A particularly interesting point to which Dr. Kidson directs attention is that daily determinations of the intensity of the solar radiation at noon, made with the aid of an Ångström pyrheliometer, showed a sudden decrease of about ten per cent on May 5 and a slight recovery since. As an effect of this kind is likely to be general over the region affected by volcanic dust at high levels, it appears probable that the excess of solar radiation now being received by the earth's surface over the northern as compared with the southern hemisphere, on account of the season, is distinctly greater than usual. Although some effect on the weather is probable, it would be unsafe to refer abnormal weather at a particular place to this source, and there are not enough meteorological observatories at present to allow of a comparison between average weather conditions in the two hemispheres before and since the eruptions, in order to trace their effects.

E. V. N.

The Laboratory for Fresh Water Biological Research on Windermere

IN Great Britain, research on fresh water biological problems has, for many years, suffered from the lack of adequate laboratory facilities—a curious fact since so much valuable pioneer work has been done in the British Isles, particularly on the lakes. The opening, last September, of a laboratory under the control of the Fresh Water Biological Association of the British Empire has removed this drawback, and investigators wishing to pursue the various branches of fresh water research can now be assured of obtaining the requisite facilities.

The laboratory is situated in Wray Castle, about three miles from Ambleside and on the north-west shore of Windermere. The lake reaches its maximum depth, just over seventy metres, about a quarter of a mile from the boat-house, and different types of inflowing streams and of shore lines are within a convenient distance. There is also a large number of streams and of smaller bodies of standing water within a short distance of the laboratory, these including examples of very diverse types, while almost the whole range of British fresh water habitats can be found within a distance of fifteen miles. There is thus abundant scope for biologists interested in plants or animals of special groups or in their habitat conditions.

The laboratory is equipped for most of the usual types of biological research. It contains ample facilities for microscopical and for experimental work, both purely physiological and also chemical. Gas for heating purposes is provided from a petrol-air installation. There is a large range of basement cellars which are used for aquaria or for storage purposes, while dark rooms are also available. The usual equipment for plankton investigation is provided, and for this and other forms of lake work a motor launch is available, as well as a smaller boat. This launch is a twenty-four-foot sea-going pinnace, fitted with gears so that very low speeds can be maintained for dredging operations. It also has a derrick and a winch driven by the motor for lifting heavy apparatus. The launch is provided with electric light and navigation lights for night work.

Persons working in the laboratory can obtain a variety of accommodation in Ambleside, and simple accommodation is available in the Castle itself, rooms having now been fitted up for this purpose. Inquiries about working places and research facilities may be made to the Naturalist-in-charge, Wray Castle, Ambleside, Westmoreland, or to the Honorary Director, Dr. W. H. Pearsall, The University, Leeds.

The Neutron

A GROUP of three important papers on the production and properties of neutrons has appeared in the June number of the *Proceedings* of the Royal Society. The first, by J. Chadwick, is an account of his own experiments and a general discussion of the problems involved.

The experiments are in principle quite simple. Beryllium or boron is exposed to the α -particles of polonium, and the resulting penetrating radiation, probably a mixture of γ -rays with neutrons, examined with an electrical particle counter. The neutron has the property, otherwise only associated with radiation quanta, of being recorded by the secondary ionising action of some particle with which it has collided—in this case usually, if not invariably, the nucleus of an atom. Apart from the use of one of the new forms of electrical counters, the main point of the experiments seems to be that a very strong preparation of polonium is required.

Amongst the interesting questions which are touched upon in Dr. Chadwick's survey are the effective collision area which various nuclei offer to a neutron and the allied problem of the nature of the interaction. Dr. Chadwick finds by direct experiment that both for light and heavy nuclei the effective area is not much different from the usually quoted values for the size of the nucleus, and since experiments with lead indicate that neutrons are scattered about equally well in all directions, he suggests that the interaction may occur well inside the nucleus, which is in accord with the very limited region throughout which a neutron would be expected to have an appreciable field.

The other papers, by N. Feather and P. I. Dee, are concerned with the application of the Wilson cloud chamber to the problem. Dr. Feather has obtained a number of photographs of the collisions between neutrons and nitrogen nuclei, in which, on account of its negligible interaction with electrons, the neutron itself does not give a trail. The collisions appear to be of several types. In some, presumably elastic, there appears only the short, heavily ionised trail of the fast nitrogen nucleus which has been set in motion. The inelastic collisions were of two main types, in the first of which the neutron is captured and an α -particle liberated, whilst in the second the neutron is not captured but probably a proton liberated.

Mr. Dee's contribution is a search for visible evidence of the interaction of neutrons with the electrons of molecules in the air, using a most carefully adjusted Wilson chamber. This was not found, and the quantitative formulation of his results shows that the probability of interaction of a neutron with an electron, with the production of a recoil electron track, is less than one per cent of the probability of similar interaction with a nitrogen nucleus. The ionisation along the path of a neutron is given as less than one ion pair in three metres of air.

University and Educational Intelligence

ABERDEEN.—The University Court has decided that in future the professor of surgery shall devote the greater part of his time to the duties of the chair, and that his private practice will be limited to cases seen and treated in Aberdeen—with rare exceptions. It is understood that preference will be given to those candidates of wide experience of clinical surgery and acknowledged power of teaching who, by their special training and record, have given evidence of their capacity for and interest in research. The appointment to the chair is made by the Crown on the recommendation of His Majesty's Secretary of State for Scotland.