tion and depression. From time to time caves have been found in the Carboniferous limestone. Two of these were examined by a local clergyman about the middle of the last century, but the exploration was carried out in an unscientific way, and the remains discovered, without precise identification or record of stratification, are now deposited in the Tenby Museum. A more careful examination of the rock shelter, known as Nanna's Cave, has recently been made by local archæologists, and the results are described in a paper by Mr. A. L. Leach, reprinted from *Archaeologia Cambrensis* for July, 1916. Remains of two skeletons, one female, the other male, were found. The female skull presents no characters which enable us to separate it from modern British skulls, or from remains which have been found in Neolithic or later Palæolithic deposits. It may be as old as the Aurignacean; but it showed no character which would disprove it being of Neolithic or historic age. In association with it was found a skilfully struck flint flake, similar to that obtained from the Hoyle Cave near Tenby, which is probably of the late Palæolithic age. This fact, however, is not conclusive of the age of the human remains. In the Romano-British age the cave was again occupied, and some fragments of pottery of that period formed parts of an olla, or cooking-pot, and a mortarium, probably used for rubbing down fruits and other soft food.

POTASH FERTILISERS FROM FELSPARS.

THE dearth of potassium salts in this country owing to the war has caused renewed attention to be devoted to the possibilities of preparing soluble potassium salts from the large deposits of felspar which are found in certain parts of the country. The problem has occupied the attention of chemists intermittently for many years, but the processes devised in the past have proved commercially unsuccessful, owing largely to the failure to obtain, along with the potash salts, other saleable products which might share the cost of manufacture. This difficulty would appear to have been largely overcome in the process patented by Mr. J. Rhodin, a Swedish inventor, in which, along with the soluble potassium salts, a marketable white cement is obtained. The successful results obtained by this process with Swedish felspars have been brought to the notice of the Board of Agriculture and Fisheries, and under the auspices of a sub-committee of the Fertilisers Committee of the Board further tests with British felspars from Roche, in Cornwall, and Loch Eriboll, in Sutherlandshire, have been carried out, the results of which are summarised in the February issue of the *Journal of the Board of Agriculture*.

The Roche felspar, containing 10·8 per cent. K_2O, yielded 75 per cent. in a soluble form, whilst the Loch Eriboll spar, with 8·6 per cent. K_2O, gave 60 per cent. soluble. A Swedish spar, with 12·9 per cent. K_2O, yielded 54 per cent. in a soluble form. Expert opinion described the cement as a true hydraulic cement, of satisfactory colour, but of much lower tensile strength than Portland cement.

As the result of its examination, the sub-committee expresses the opinion that encouragement should be given to any movement for the manufacture of potash and white cement by the Rhodin process on a commercial scale, and that in the event of a public company applying to the Treasury for permission to raise capital to work this process, the application should receive the strong support of the Fertilisers Committee.

THE NATURAL SCIENCES IN PUBLIC SCHOOLS.[1]

Age Limits for School Science.

THE teaching of natural science in public schools is of recent growth. Until quite recently most of the boys who took up this subject did so with the intention of making use of the training in their future careers. Even now, in some public schools, the number of boys learning science is small. It is, however, becoming recognised that science should form part of every boy's general education. For this reason it is necessary to put some, at least, of a boy's general training in science before the age at which specialising should be allowed. Too early specialising is bad policy: the age at which this may be begun by the average boy is about sixteen and a half years.

Before this age (or its equivalent for forward or backward boys) the pupil should have spent, on an average, four hours a week at science for a period of at least two years, and six hours a week for a further two years. Thus the work should be begun in the preparatory schools. The only work recommended to be done there is in nature-study and practical measurements. See "Nature-Study in Preparatory Schools" and "The Correlation of Mathematical and Science Teaching" (Bell and Sons, each 6*d*.).

After a boy has reached such a standard of general education that he may be allowed to specialise to a certain extent, he should have the opportunity of devoting about eight hours a week to science if he chooses to do so. At a still later stage the specialisation should be more marked in the case of those who choose a scientific career.

Science in Examinations.

If these ideals can be reached by any means other than making science compulsory in examinations, those means should be employed. If they cannot, compulsion by examination regulations must be applied. But this should then be recognised as a necessary evil. It is possible that some system of inspection of schools by examining bodies, combined with the granting of certificates on the recommendation of a properly qualified master, might prove to be the solution of the difficult problem of insisting on science being learnt by every boy, without the restrictions necessarily imposed when there are examination syllabuses. But the details of such a scheme would require careful thinking out.

But there is, at present, a yet stronger argument against the attempt to foster the teaching of science by making the subject compulsory in examinations. So long as instruction in science was given only to those who were destined for a scientific career, it was natural (if, perhaps, unwise) to aim chiefly at inculcating scientific method, with a certain disregard of general knowledge of natural phenomena. This was done, for the most part, by logical courses in hydrostatics, heat, light, electricity, and chemistry. But in some of the schools where science has already become a compulsory subject it has been recognised that such courses may be unsuitable for the non-scientific mind. The attempt is made to arouse a boy's appreciation of the value and scope of science rather than to teach him the elements of a subject which he will drop even before leaving school. In such schools a considerable proportion of his science hours is devoted to studying subjects ranging from the universe to the electron: astronomy, geology, biology, physio-

[1] Abridged from a memorandum drawn up by the committee of the Association of Public School Science Masters to serve as the text of the evidence offered on behalf of the association to the Government Committee on the Teaching of Science.