

mica is to be ascribed more to special uranium-richness of the nucleus rather than to the antiquity of the rock. The rock is a biotite granite with a white and a yellow felspar. It is said to be from Sinai. One side of the specimen has been exposed to the weather, and the appearance of this side suggests desert conditions.

J. JOLY.

J. H. J. POOLE.

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The Spectra of Isotopes.

SOME years ago I made an investigation of the spectra of ordinary lead and lead from pitchblende residues, but I was not able to detect any difference in the spectra. More recently Aronberg (*Astrophys. Journal*, February, 1918) has found a difference in the wave-lengths of the principal line in the spectra of ordinary lead and lead from Australian carnotite amounting to 0.0043 Å. I have made a fuller investigation of the problem by a method of experiment greatly superior to that which I had previously adopted, and the results show that there is a small but real difference in the spectra, which agrees closely with the value found by Aronberg. A difference has also been found between the wave-length of the principal line in ordinary lead and lead from Ceylon thorite.

These results at once suggest that the spectroscope will furnish a simple and comparatively rapid method of distinguishing isotopes, and some measurements have been made of the wave-lengths of the principal line in ordinary thallium and in thallium from pitchblende residues. It has long been suspected that, in addition to lead, some of the metals found in pitchblende may be of radioactive origin, and the results of the wave-length measurements, though for certain reasons they cannot be given the same weight as those relating to lead, suggest that the thallium in pitchblende is an isotope of ordinary thallium and more probably of greater atomic weight. It is hoped to publish shortly an account of the investigation.

THOMAS R. MERTON.

Balliol College, Oxford, September 15.

A British Imperial Antarctic Expedition.

MAY I, through the columns of NATURE, direct attention to the British expedition which I am at present organising and propose to lead to the Antarctic in June next year? The objects of the expedition are briefly as follows:—

(1) To ascertain the position and extent of the mineral and other deposits of economic value already known to exist in Antarctica (*vide* scientific reports of Bruce, Mawson, Scott, and Shackleton), and obtain data for the practical development as a further source of Imperial wealth.

(2) To obtain further evidence of the localities of whales of economic value, and to create British industries in this trade.

(3) To investigate the meteorological and magnetic conditions in the Ross Sea area and at Cape Ann (Enderby Land) in connection with their influence under similar conditions in Australasia and South Africa respectively. That such results are of great economic value has been proved by the station established by the Argentine Government for similar purposes in the South Orkneys.

(4) To circumnavigate the Antarctic continent.

(5) Generally to extend our knowledge of Antarc-

NO. 2605, VOL. 104]

tica, especially with the view of obtaining further scientific data of economic importance.

The expedition proposes to leave England in June, 1920, and to be away for a period of five years. During this period important scientific research will be undertaken on the lines briefly given above. Applications are invited from fully qualified men in the following branches of scientific knowledge:—Geology, meteorology, biology, surgery and physiology, photography, cartography, and hydrography.

The expedition has been well and strongly supported, and I shall be glad if all who are interested will communicate with me at the address given below.

JOHN L. COPE.

66 Victoria Street, London, S.W.1,
September 20.

Luminous Worms.

WHEN I wrote the letter which appeared in NATURE of September 11 (p. 23), I made no reference to my impression that a friend had seen luminous earthworms in Great Britain because I was not aware that he was still in England, and was consequently unable to give accurate details. I found afterwards that this friend, Dr. Edgar Newbery, recently appointed professor of physical chemistry in the University of Cape Town, had not yet left this country, and I was able to write to him for confirmation of the impression in my mind, and I have now received a reply. Writing from Byton Rectory, Presteign, Radnor, Prof. Newbery says:—

"I have seen luminous earthworms on more than one occasion on the grass of our lawn here. (We are really in Herefordshire, though our post town is in Radnor). The soil from which they emerged is a mixture of clay and gravel, but is very fertile. The luminosity was very weak, and gathered in spots or blotches over the body. Small luminous patches were left behind on the grass in the track of the worm, but these faded in a very short time (30 seconds or so). I have seen them both in warm weather and when a slight frost was on the ground, but a very dark night is necessary to render them at all conspicuous, as the luminosity is so weak."

That Prof. Newbery is not confusing luminous earthworms with luminous centipedes is concluded from the next paragraph in his letter:—

"On Tuesday, September 2, I saw a remarkably brilliant luminous centipede in a barley field 100 yards from here. The light was so vivid that it caught my attention at a distance of 12 yards, and the luminous trail left behind it was quite 12 in. long. . . ."

Suggesting the cause of luminosity, Prof. Newbery says:—

"I am inclined to believe that the luminosity of these centipedes and worms is due to slow oxidation of some excretion from the body which may well be affected in quantity and quality by the food available."

So far as centipedes are concerned, I think Dr. Brade-Birks and I shall be able to show, in a forthcoming paper on luminous Chilopoda, that atmospheric oxygen is not necessary for the production of light in the centipedes we have studied, but Prof. Newbery's suggestion about food supply may explain why some individuals of a species are luminous while others are not.

In Verhoeff's "Chilopoda" (Bronn's "Klassen und Ordnungen des Thier-Reichs") there is no reference in the bibliography to Dr. T. L. Phipson's "Phosphorescence, or the Emission of Light by Minerals, Plants, and Animals" (London: Lovell Reeve, 1862); I there-