

and magnesium. Two lumps of irregular shape were tested by methods described previously<sup>1,2</sup>. Strong diamagnetic susceptibility, which could be destroyed by a magnetic field, showed that the specimens became supraconductive. After supraconductivity had been destroyed by a magnetic field, the magnetic flux threading the specimens 'froze in' when the field was lowered again. The formation of such a supraconductive 'sponge' was to be expected in a specimen containing 2 per cent of impurities<sup>3</sup>.

The transition point in zero field was determined by the decrease of the 'frozen in' magnetic dipole with increasing temperature<sup>4</sup>. The transition point was found to be 4.71° K. The threshold values, that is, the field strengths at which the last trace of supraconductivity disappeared, were found to be very high (steepness of the threshold curve more than 1,000 gauss per degree). The specimens behaved in all respects similarly to the samples of tantalum investigated by Mendelssohn and Moore<sup>1</sup>.

So far, supraconductivity has been observed in all metals in Groups IIb, IIIb, IVa, IVb and Va of the Periodic Table (except germanium, which is cubic like grey tin, and protoactinium, which has not been tested) but in no other group. The supraconductivity of lanthanum (Group IIIa) makes it probable that some of the other metals of this group also (scandium, yttrium, actinium) will become supraconductive. The question arises also whether the rare earths between lanthanum and hafnium will show supraconductivity. It has to be remembered, however, that the rare earths, owing to their incomplete *N*-shells, have strong magnetic moments which may

make supraconductivity impossible. From this point of view, the element 71 (where the *N*-shell is completed) is the one in which supraconductivity is most likely.

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Feb. 13.

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<sup>1</sup> Mendelssohn, K., and Moore, J. R., *Phil. Mag.* (21), 7, 532 (1936).

<sup>2</sup> Mendelssohn, K., *Proc. Roy. Soc., A*, 155, 558 (1936).

<sup>3</sup> Keeley, T. C., and Mendelssohn, K., *Proc. Roy. Soc., A*, 154, 378 (1936).

<sup>4</sup> Mendelssohn, K., and Babbitt, J. D., *Proc. Roy. Soc., A*, 151, 316 (1935).

#### Dr. Seeber in South Africa

IN connexion with the study of South African freshwater fishes, it is of interest to ascertain particulars about Dr. Seeber, after whom two fishes were named by Gilchrist and Thompson. Apparently Dr. Seeber corresponded with these authors about the years 1909-11, but I can obtain no information as to who Dr. Seeber was, where he lived or was stationed, or where he travelled in South Africa. The Medical Register and other local sources have failed, and this request is issued in the hope that one of the many readers of NATURE may have known Dr. Seeber. Any facts bearing on his residence or activities in South Africa will be welcome.

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Jan. 8.

#### Points from Foregoing Letters

Miss E. W. HUME reports the preliminary results of an investigation on vitamin A standards, undertaken by the Accessory Food Factors Committee with the help of numerous collaborators. It appears that the discrepancies previously reported in the case of 'concentrates' have been due to unsuspected deterioration in the course of biological tests. The factor for converting results of spectroscopic tests into international units is found to be 1,470, with a range of individual values of 1,400-1,700. The previously accepted value of 1,600 recommended by the International Conference of 1934 is, however, retained for the time being.

According to investigations described by Holger Klingstedt, the behaviour of the sex chromosomes at meiosis indicates a closer relationship between sections of the Megaloptera and true Neuroptera than exists within these orders. The old distinction between them may therefore be unsound, as newer morphological and palaeontological evidence also indicates.

The reversible behaviour of the blue and green solutions obtained by treating ascorbic acid (vitamin C) with phosphomolybdic acid is described by Prof. N. Bezssonoff and Mélanie Woloszyn. The authors consider this as further proof of the 'duality' of the reversibly-oxidized form of ascorbic acid and, by comparison with the behaviour of other organic compounds, conclude that the dienol group of the vitamin C molecule is polarized.

The identification of tyrosine by means of X-ray spectrograms in diseased pedipalps (arachnids related to the scorpions) is reported by F. A. Bannister.

The tyrosine occurs in the form of radiating needles in museum specimens which have been affected by a fungus disease (actinomycosis).

A chemical examination shows that the ink used for the letters found on the biblical site of Lachish was of mixed iron and carbon type. A. Lewis has, in addition, investigated other ancient documents and concludes that iron inks, probably in combination with a gall or tannin extract, were frequently used in antiquity.

Curves based on the critical penetration frequency of radio waves, indicating a sharp increase in the ionization of the  $E_1$  and  $E_2$  regions of the upper atmosphere during the period of maximum intensity of the Leonid meteoric showers in November 1936 are submitted by J. N. Bhar. The ionizing power of the meteors appears to be effective in the region where they are visible to the naked eye (between 163 km. and 70 km.).

A new value for the ellipticity of the earth and that of the moon's equator, based on a corrected value for the moon's perigee and node, calculated by Prof. W. W. Brown, is given by Dr. Harold Jeffreys.

Prof. J. Satterly points out that the value of the molar latent heat of evaporation of helium calculated from data on viscosity and vapour pressure, according to Dr. J. Newton Friend's formula, does not agree with the experimental value, and concludes that the formula is incorrect. Dr. Newton Friend suggests that, since the formula applies to a large number of substances, one may assume that liquid helium behaves abnormally.