(near saturation) in a field of 20,000 Oersted is about 13 at room temperature.

It is rather difficult to assert at present whether we are dealing with a homogeneous alloy of iron and neodymium, or whether the finely dispersed iron is imbedded among the neodymium grains. The value of the specific magnetisation seems to correspond to about 7 per cent of free iron. Yet the material investigated by us shows an extraordinarily great coercitive force, reaching 4,300 Oersted with a remanent magnetisation equal to 70 per cent of the maximal temporary value. This enormous coercitive force, so far as we know, has never been observed either in pure iron or in any of its alloys. Thus we may conclude that these remarkable magnetic properties are due to a hitherto unknown iron alloy.

We are examining the nature of this alloy and we hope to publish soon elsewhere further details concerning this problem.

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Ascorbic Acid and Thiosulphate in Urine

To investigate the metabolism of vitamin C, one can determine the content of ascorbic acid in urine by means of titration with 2:6 dichlorophenolindophenol in acid medium. An interfering reducing substance is present in relatively large amount in the urine of diabetics and also in that of cats, and to less extent in the urine of normal persons and dogs; this has proved to be thiosulphate.

The thiosulphate can be separated from the ascorbic acid by means of precipitation with mercuric acetate (a method used to remove cysteine, ergothionein and glutathione^{1,2}) and by precipitation with barium salts.

Details of the operation will appear in *Acta Brevia Neerlandica*.

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Nov. 22.

¹ Emmerie, *Biochem. J.*, **28**, 268; 1934.

² Emmerie and van Eekelen, *Biochem. J.*, **28**, 1153; 1934.

Points from Foregoing Letters

LORD RAYLEIGH finds that helium gas can pass not only through silica glass but also through gelatine and celluloid. He suggests that the gas passes between the individual crystals that compose these materials. Single crystals of quartz do not allow the passage of helium, but beryl, which has an exceptionally open crystal structure, does.

Alloys of thallium-lead or thallium-bismuth (Bi_2Te_3) when rendered supra-conductive by cooling below 4° K., allow electromagnetic fields above certain critical values to penetrate them. Prof. W. J. de Haas and Mr. J. M. Casimir-Jonker give the relation between the value of the critical electromagnetic field and the temperature.

Experiments with supra-conductive materials are also reported by Mr. N. Kürti and Prof. F. Simon, who have determined the transition points for zirconium (0.70° K.), hafnium (0.3–0.4° K.) and other metals. From these experiments and others with mixtures of a metal and paramagnetic salt, the authors hope to observe the effect (entropy) due to the change of distribution of the spin of atomic nuclei at very low temperatures (0.01°–1.0° K.). The authors, using the magnetic method of producing very low temperatures, have reached a temperature of 0.04° K. with iron alum.

The recent deaths of Prof. W. M. Hicks and Sir Horace Lamb prompt Sir Joseph Larmor to contribute a few historical remarks on vortex theory, and to direct attention to one of its unsolved aspects of importance to aeronautic research, namely, whether a straight vortex cylinder fades from core outwards, and how rapidly.

From calculations based upon the wave-length of X-rays determined by the grating method, and also from crystal diffraction, Prof. Erik Bäcklin finds a value for the charge of an electron which differs appreciably from that obtained directly by means of electrified droplets.

Experiments on the relation between density and frequency of copulation in weevils lead Dr. S. MacLagan and Mr. E. Dunn to the conclusion that the organism automatically limits its own abundance,

when other factors normally inhibiting population are not effective.

Certain mosquitoes (*Culex pipiens*) of British origin can lay eggs without a previous meal of blood. Mr. J. F. Marshall and Mr. J. Staley report this fact, already observed with certain races of mosquitoes on the Continent, and ascribed to their adaptation to urban areas, where artificially heated buildings are common.

The electro-chemical potential (electromotive force) obtainable from the oxidation of hypoxanthine to uric acid (final stage of nitrogen compounds eliminated from the body brought about in the presence of enzymes existing in the liver, spleen and in milk), was found by Miss Filitti to be about –0.400 and –0.113 volts respectively. Mr. D. E. Green went more deeply into the theory of the reaction, and carried out further experiments, criticising previous work as not proved. Miss Filitti now points out that, as regards hypoxanthine, Green's findings confirm her own, while the xanthine-uric acid potential needs only a small correction due to their 'dismutation' (reversible change in absence of oxygen).

A bacterium which is able to destroy the usual green fluorescence of flavin solutions, producing instead a blue fluorescence, is brought to notice by Dr. L. Bradley Pett, who describes some of the properties of the blue fluorescent substance.

The theory of the expanding universe gives ten thousand million years as the age of the stars, while previous calculations based upon the rate of loss of mass (in the form of energy) necessitated a period a hundred times longer. Mr. H. J. Walke suggests that the discrepancy would be eliminated if the heavier stars give off not only radiant energy but also ions (which form part of the cosmic rays).

Neodymium containing 7 per cent of iron is found by Miss V. Drožžina and Mr. R. Janus to have great power of retaining magnetisation. The reversed magnetic field necessary to reduce its magnetic induction to zero (coercive field) is stated to be greater than that for pure iron or any of its known alloys, which suggests that the material investigated contains a hitherto unknown iron alloy.