from within this area that I have not already seen in North America or shall not be likely to see in visiting the main European herbaria. I am now returning to the field with the Canadian Eastern Arctic Patrol to gather further material; from this or my other collections I should be pleased to make a presentation of duplicate specimens of high arctic plants in return for the courtesy of any loans of older collections that prove of interest.

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July 10.

The Mysterious Number 137

IN NATURE of July 11, Sir Flinders Petrie points out that Sir Arthur Eddington's cosmical number, 137, is nearly the well-known 'Byrne's' number, 137129, the mantissa of the logarithm of which shows the *same succession of digits*. It is sometimes said to be the number which is equal to its logarithm; but actually of the number 137·129 . . we should say that one thousandth of the number is the logarithm, to base 10, of one hundredth of the number. This coincidence between Eddington's and Byrne's numbers can have no physical significance, because the coincidence depends on 10 being used for the scale of notation and the base of the logarithms. The older wisdom of Mars may have adopted scales and bases of twelve; if so, the Martian Eddington would have discovered the number $e5$ ($11 \times 12 + 5 = 137$), while the Martian Byrne would have shown that log (to base twelve) $1{\cdot}38e66 = 0{\cdot}138e66$. Raising this number two duodecimal places, we have $138{\cdot}e66$, in the scale of twelve, which equals 188·961 in our notation.

Other such Byrne type numbers can be found in all scales of notation, and they are all different. For example, in the scale and base of three, the Byrne number is 2110220, and 211·022 (in scale of three) only equals 22·296 in our notation.

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Points from Foregoing Letters

GRAPHS showing the average hourly intensity of cosmic rays at Cape Town for the years 1933, 1934 and 1935 are submitted by Dr. B. F. J. Schonland, B. Delatizky and J. P. Gaskell. A slight sinusoidal variation is apparent, with a maximum at about 24 hr. local sidereal time and a minimum at 12 hr. The variation appears to be a true sidereal time effect, since it occurs simultaneously in both hemispheres.

Measurements of cosmic ray intensity in a deep coal mine, carried out by Drs. J. Barnóthy and M. Fórro, indicate that some of the rays penetrate through a thickness equivalent to 2,500 m. of water. These would correspond to particles having an energy greater than 10^{12} electron volts.

New measurements by L. Lewin of the range of particles emitted by samarium show, in addition to the alpha-particles of 1·15 cm. range, also the presence of ionizing particles of 0·13 cm. range, amounting to about one third the total ionization due to alpha-particles.

The absorption by silver of 'thermal' neutrons at low temperatures (20·4° and 77° K.) has been determined by a group of investigators from the Ukrainian Physico-Technical Institute. They find that the ratio of the absorber thickness necessary for equal absorption at different temperatures, though constant, has a value of only about two thirds that to be expected if the absorption were inversely proportional to the velocity and a Maxwellian distribution for the energies of the neutrons be assumed.

The nature of the chemical linkages responsible for the contraction of wool when treated by various reagents is discussed by Dr. J. B. Speakman. He considers that the 'permanent set' is to be explained by the formation of —S—NH— bonds rather than in terms of —N=CH— bonds.

Prof. R. A. Peters describes the effect of dichlordiethyl-sulphone upon the respiration of brain tissue *in vitro*. As in the case of iodoacetic acid, there is no interference with the change of lactic to pyruvic acid, but the further oxidation of pyruvic acid is inhibited.

An instrument for testing the hardness of microscopic objects is described by Dr. E. M. H. Lips and J. Sack, who submit photomicrographs of copper-aluminium alloy and of cast iron containing phosphorus to illustrate the usefulness of the new apparatus.

Results of noise measurements made with earlier types of meters are compared by B. G. Churcher and A. J. King with values obtained by means of the new standard apparatus. The authors indicate conditions under which approximately equivalent results can be obtained.

H. F. Smith recalculates the percentage 'crossing-over' effect in the chromosomes of the fruit-fly at different temperatures, from the experimental results of Plough, allowing for differences among the controls. He points out that the graph has a U-shaped form with a minimum at 22° C., and that there are no maxima at 13° and 31° as sometimes stated.

The refractive indexes of ordinary and of heavy ammonia gas (ND_3) for various wave-lengths between 4358 and $6562{\cdot}9 \times 10^{-8}$ cm. have been determined by O. E. Frivold, Prof. O. Hassel and S. Rustad. The values for the heavy ammonia are slightly lower than those for ordinary ammonia.

Dr. B. Derjaguin directs attention to the fact that there is no disagreement between his findings that films of water of less than $1{\cdot}5 \times 10^{-5}$ cm. thickness have great rigidity, and the results of Bowden and Bastow, who have found no change from normal behaviour at thicknesses greater than 2×10^{-5} cm.

Diagrams showing the hardening of molybdenum wires heated in nitrogen at 1300° C. (by passing an electric current) are submitted by P. Túry and S. Krausz. The quantity of nitrogen 'sorbed' by the molybdenum is small (about 0·007 per cent).