

The peculiarity of the fork obtained by Curie is that it is due to a neutron which owed its origin to beryllium bombarded by α -particles from polonium. Such neutrons were used by Chadwick⁵ in his experiments on the disintegration of hydrogen and nitrogen, and using the value 5.25×10^6 electron volts for the kinetic energy of the α -particles, he calculated that the maximum energy which could be imparted to such neutrons (assuming that all the energy due to the mass defect involved, together with the kinetic energy of the α -particle, was transferred to the neutron) was 8.0×10^6 electron volts. This value accords well with that of Curie-Joliot and Joliot already mentioned, namely, 7.8×10^6 electron volts.

Kurie, using 5.4×10^6 electron volts as the kinetic energy of the polonium α -particles, obtains a maximum energy for the neutron of 12.3×10^6 electron volts, leaving 4.7×10^6 electron volts unaccounted for. This discrepancy he points out cannot be due to experimental error for the fork is a good one and may be accurately measured.

If, however, we assume the correctness of Chadwick's maximum energy for neutrons of mass 1 from beryllium bombarded by polonium α -particles, namely, 8×10^6 electron volts, the above high energy, 17×10^6 electron volts (probable error 1×10^6 electron volts), is explained by the assumption of a neutron of mass 2 with energy 16×10^6 electron volts.

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¹ *Proc. Roy. Soc., A*, 136, 737; 1932.

² *Phys. Rev.*, 43, 584; 1933.

³ *Phys. Rev.*, 43, 771; 1933.

⁴ *NATURE*, 130, 57, July 9, 1932.

⁵ *Proc. Roy. Soc., A*, 138, 699; 1932.

Sakai Marksmanship with a Blowpipe

ON looking through some old note-books, I find that I have preserved a record that may be of general interest, one of Sakai marksmanship with a blowpipe. The subject of the record was a Kampar Sakai whom I met on Cameron's Highlands, Malaya, in March, 1926. As I had seen previously some very poor exhibitions by aborigines with the blowpipe, I asked this man, who was a fine sturdy fellow, to let me see what he could do. The target was a bit of deal-board from the lid of a box, dimensions not noted; but I marked a two-inch bull on it in pencil, stationed the Sakai 50 ft. away, which was the greatest distance possible on account of vegetation, and told him I would give him ten cents for every hit on the target and twenty cents for every bull, the shoot to be limited to ten rounds with unpoisoned darts.

The record was as follows:

- | | |
|----------------------|-----------------------|
| 1. 1½ in. from bull. | 6. 4 in. from bull. |
| 2. Bull, side of. | 7. ¼ in. from bull. |
| 3. 4 in. from bull. | 8. Missed the target. |
| 4. 1 in. from bull. | 9. 1 in. from bull. |
| 5. Bull, centre. | 10. 1½ in. from bull. |

The shoot cost me, in equivalent English currency, 2 shillings and 6.8 pence. I remember that the darts penetrated the target sufficiently to make it difficult to pull them out without injuring them.

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Hysteria in Dogs

SOME evidence has been collected (from more than fifty cases) indicating a connexion between so-called canine hysteria and vitamin A deficiency coupled with a substance ('E-substance') occurring in dog biscuits and other cereals.

Fifty-four cases of dogs suffering from hysteria were investigated. Of these, all except one were fed on a preponderatingly cereal diet: 26 of these, continuing on the same diet, remained hysterical, while 28, the diet of which was changed to contain more vitamin A, recovered (Fig. 1).

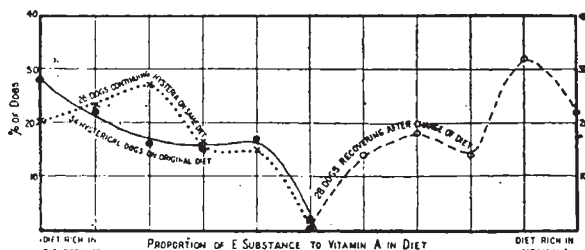


FIG. 1.

In the absence of quantitative data, it is not possible to assess the exact pharmacological ratio of vitamin A : E-substance.

The recent work of Mellanby¹, in which dogs were fed on a cereal diet deficient in vitamin A, is suggestive; symptoms closely resembling canine hysteria were aggravated by the addition of wheat germ².

Mellanby's work, taken in conjunction with the similarity of symptoms, treatment and cure of convulsive ergotism and canine hysteria, make it possible that the cause of the two is the same, or closely allied.

Further work is in progress.

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¹ E. Mellanby, *Brit. Med. J.*, i, p. 679; 1930

² E. Mellanby, Linnacre Lecture, Cambridge (1933).

Pelvic Filaments of Lepidosiren

DR. CUNNINGHAM and Mr. REID¹ were naturally concerned that Mr. Foxon² should dismiss their theory while omitting half of the evidence on which it was based. The function of the pelvic limb filaments of the breeding male *Lepidosiren* as a source of oxygen for the developing embryos is, of course, probable only if the supply of oxygen from the water in the nest is actually insufficient. That this was the case appeared probable from the work of Carter and Beadle³ on the Chaco swamps, where the Winkler method for oxygen estimation was employed. Mr. Foxon¹ replies that my work on swamps in East Africa⁴ has thrown some doubt on this point, and that the figures for oxygen in the waters investigated may be subject to an error of anything up to 1.0 c.c. per litre.

This error is due to the presence of reducing substances, particularly sulphide, the quantity of which I estimated in some African swamps by iodine absorption in acid solution. By this means, it was possible to calculate the maximum amount of oxygen which could be present in a sample from which a zero figure had been obtained by the Winkler