

fluoride separation was made. The precipitate was washed well and dried. Correction was made for any loss of material that had taken place during chemical separation by weighing the dried precipitate. The activity of the lead fluoride precipitate was measured two hours after the end of bombardment and its subsequent decay was followed. From the family of decay curves the energy-yield curve for the 112 min. positron activity was determined and is reproduced in Fig. 2. In most cases the points plotted represent the means of three separate bombardments at a single energy. The threshold seems to lie at about 6 Mev. Assuming the known masses of ^{18}F and ^{19}F , calculations were made, and a Q value of -3.25 Mev. was obtained for the (d , ^3H) reaction in fluorine. Because of the low probability of escape of the ^3H particle from the compound nucleus, no appreciable yield of ^{18}F is obtained for deuterons of energy less than 6 Mev.

The cross-section for the formation of ^{18}F from fluorine under deuteron bombardment was measured. For deuterons of energy 8.8 Mev., the value of the cross-section is $3.9 \pm 0.4 \times 10^{-27}$ cm.².

Dr. T. E. Banks and Mr. J. Dainty rendered me assistance in running the cyclotron.

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¹ Krishnan and Banks, *Proc. Camb. Phil. Soc.*, **37**, 317 (1941).

² Oilphant, Kempton and Rutherford, *Proc. Roy. Soc. A*, **150**, 241 (1935); O'Neal and Goldhaber, *Phys. Rev.*, **57**, 1086 (1940).

³ Borst, *Bull. Amer. Phys. Soc.*, **16**, 35 (1941).

⁴ Dubridge, Barnes, Buck and Strain, *Phys. Rev.*, **53**, 447 (1938); Pool, Cork and Thornton, *Phys. Rev.*, **52**, 239 (1937); Yasaki and Watanabe, *NATURE*, **141**, 787 (1938).

Reproduction in Capuchin Monkeys

So little is known of the reproductive processes of any South American monkey that additional data on the typical genus *Cebus* are worthy of record. Capuchins seldom breed in captivity, only three records during a hundred years being given for the London Zoo by Zuckerman¹ and no further cases being mentioned in his revised report of 1937². Since that date Hamlett³ has given a detailed account of the oestrous cycle, ovulation and menstruation in *Cebus*, but he left many questions unanswered.

The present notes are based upon observations made on two male *C. xanthosternos* mated with three female Capuchins—two *C. vellerosus* and one *C. apella*. All three females have recently given birth to hybrid offspring.

Copulation, which Hamlett never saw, was inferred by him to occur at day-break, or some time before the arrival of laboratory staff, as it "seems unlikely that the monkeys copulate at night". With my animals copulation only occurred at night, usually at dusk. It differs in several ways from the process in Old World monkeys (*a*) in being very prolonged—up to twenty minutes in duration; (*b*) in the extraordinary vocal sounds accompanying the performance. These sounds are emitted by both participants and were echoed by an older (half-grown) baby living in the same cage. Copulation takes place *a posteriori*, but the male has long intervals of quietude during which he sits back without withdrawal, though continuing the vocalization. Restriction of copulation to certain periods of the menstrual cycle has not been noted,

though this may be possible. No externally visible sign of menstruation has been observed in any of the females.

Gestation is probably of similar duration (that is, six months) to that of Old World monkeys, since one female *C. vellerosus* produced her offspring exactly seven months after first introduction to a male *C. xanthosternos*. Sexual behaviour was observed after the first three weeks.

The new-born differs from that of Old World monkeys in clinging to the mother's back, nuzzling its way round to her breast only at feeding time, thereafter returning to her back, clinging with its arms around her neck and its legs around her flanks. It does not use its tail for aiding its hold. The dorsal position is maintained from the first day.

The placenta is evidently eaten, since no sign of it was to be found within a couple of hours of birth, which occurred in one case in the day-time.

The three babies, despite their differing parentage, are all remarkably alike, and differ equally from either parent. They are all brown-bodied and black-limbed. The head pattern consists of a dark, almost black, oval central patch with a light, almost white, area on either side. The hair is long and soft on the head, not short and stiff like the father's or long and upstanding like the mother's. The body hair is lank and of the same texture as the mother's, so that the baby passes unnoticed except at close quarters.

Another curious feature is the extraordinarily rapid growth of the young compared with the tardy growth of Old World monkeys. The oldest baby was as large as its mother (*C. apella*) at the age of six months, and continued to grow after that, though it has not attained at the age of a year so great a size as its father, which belongs to a larger species.

A more complete account will be published elsewhere when circumstances permit.

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¹ Zuckerman, S., *Proc. Zool. Soc. Lond.*, 716-17 (1930).

² Zuckerman, S., *Proc. Zool. Soc. Lond.*, 321 (1937).

³ Hamlett, G. W. D., *Anat. Rec.*, **73**, 171-87 (1939).

Electron Energy-Levels in Biochemistry

THE lecture of Szent-Györgyi, recently reported in *NATURE*¹, prompts us to publish some of the results we have accumulated on the electric conductivity of wool and other materials.

Dry wool shows strong polarization under an applied potential, but as its regain* is increased its conductivity increases exponentially and the polarization is gradually swamped. When its regain exceeds 6-8 per cent it appears to behave as an electronic semi-conductor: the polarization has disappeared and Ohm's law is obeyed², and the conductivity has a large positive temperature coefficient when the regain is kept constant. The temperature coefficient is, in fact, three times that of liquid water³, and appears to be independent of regain above values of 6-8 per cent. When the logarithm of the conductivity is plotted against the reciprocal of the absolute temperature a straight line is obtained, and the slope

* Regain is the percentage moisture content calculated on the dry weight.