35.13%. The caryopsis developed from the ovaries with two or three styles did not differ in size, shape and other morphological traits.

Hubbard[3] listed a comparison of presumed primitive and advanced grass spikelet characters. The primitive types were supposed to have pistils with three styles and stigmas while in advanced ones only two (rarely one) stigmas are observed. Hutchinson[4] observed that the tribe *Avenae* still retains certain primitive features such as several flowered spikelets and five to many nerved lemmas. The spontaneous occurrence of the *A. sativa* mutant having pistils with three styles strengthens the view that the primitive types of this genus were characterised by three styles and stigmas on a three-carpel ovary.

Studies on the nature of inheritance of the three-style pistil character are in progress. It is expected that this harmless spontaneous mutant would serve as a genetic marker.

18 April 1983; Revised 1 July 1983

1. Gould, F. W., *Grass systematics.*, McGraw-Hill, New York, 1968.
2. Robbins, W. W., *The botany of crop plants*, McGraw-Hill, New York, 1931.
3. Hubbard, C. E., The genera of British grasses. (ed.) J. Hutchinson, British Flowering plants, 1948, p. 284.
4. Hutchinson, J. The families of Flowering plants. Vol. II, Monocotyledons. Oxford University Press, London, 1959.

AN UNIQUE CASE OF MONOZYGOTIC SYNCHORIAL TWINS IN THE INDIAN LANGUR MONKEY, *PRESBYTIS ENTELLUS ENTELLUS* (DUFRESNE)

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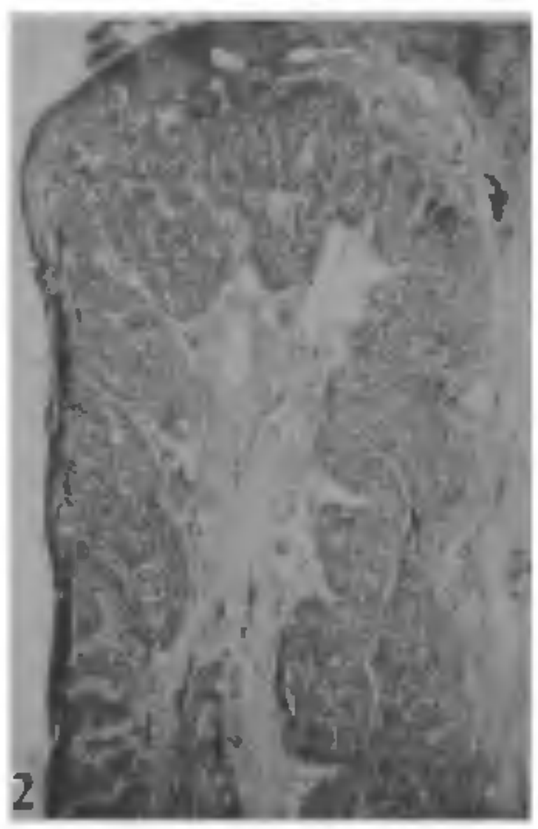
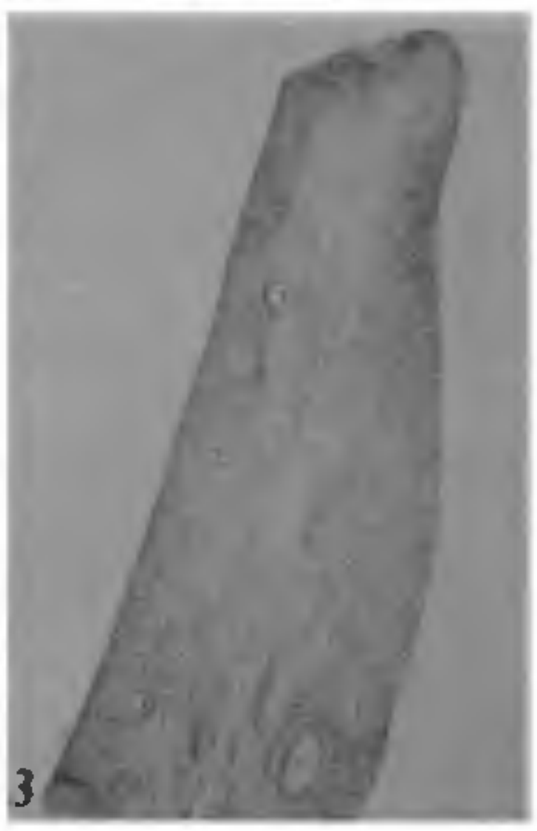
EXCEPT among the marmosets[1–3], twinning is not a normal phenomenon among non-human primates. Several instances of twin births or twin embryos have been reported as exceptions in a few Old World monkeys[3–6]. However, in none of the cases so far described has it been incontrovertibly shown that the twins are monozygotic, although secondarily a fusion of the two chorionic sacs of fraternal twins may result in synchorial twins[3].

To our best the present report is the first to demonstrate a case of unquestionable monozygotic synchorial twins in the Indian langur.

Female specimens (36) of langur were collected around Nagpur during different months of the year 1980–81. Among these, 14 were pregnant, six of which were at full term. One of the full-term pregnant monkeys had nearly full term twin foetuses in the uterus (figure 1). The uterus measured 26.4 cm in the





Figures 1–3. 1. Uterus cut open to show twins attached by their umbilical cords to the primary placental disc. ×¼. **2.** Section of the right ovary to show a large lobulated corpus luteum. × 16. **3.** Section of the left ovary showing a few developing follicles. × 10.

cranio-caudal axis and 23 cm in the lateral axis. The two foetuses were disposed parallel to the cranio-caudal axis of the uterus and their ventral sides were opposed to each other, but the head of one foetus was towards the rump of the other. Each was enclosed by its own amnion, which, in each case, was closely adherent to the body of the foetus except in the neck and the inguinal regions where the amnion was separated from the body surface of the foetus and a small amount of slimy transparent amniotic fluid was present in this persistent part of the amniotic cavity. Both foetuses were females and had a crown-rump length of 27.7 cm. The umbilical cord of both the foetuses was twisted a few times but remained distinct although they had loosely coiled round each other at three places. The umbilical cord of each foetus was 23.8 cm in length. The umbilical cords of both the foetuses were inserted near the centre of the primary placental disc located on the dorsal side (the "posterior" side according to Gray's[7] terminology in human beings) of the simplex uterus and measured 10.4 cm in diameter. The secondary placental disc on the ventral side (or the "anterior" wall) of the uterus was 10.1 cm in diameter. The primary and the secondary placental discs of the other five full term animals were measured. The maximum diameter of the primary placental disc was 10.7 cm with an average of 10.5 cm. The maximum diameter of the secondary placental disc was 10.3 cm and the minimum was 9.9 cm. Evidently, the diameter of the primary and the secondary placental discs of the twin case under description was nearly the same as that of the normal uterus carrying a single foetus. Further, the structure and the foetal vascularization of the primary and the secondary placental discs in this unique case were similar to those in the normal uterus carrying a single foetus.[8]

Examination of the ovaries revealed that a large corpus luteum was present only in the right ovary, and the left ovary contained follicles at various stages of development and several follicles at different stages of atresia (figures 2 and 3). The corpus luteum in the right ovary had occupied nearly three fourths of the volume of the ovary, the rest of the ovary being occupied by a few follicles at various stages of development of atresia. That the corpus luteum was single was evident from the fact that there was a distinct thecal demarcation of the corpus luteum from the rest of the ovarian tissue. The corpus luteum had numerous lobules separated by strands of connective tissue-like partitions. The presence of a single large corpus luteum only in one ovary is a direct evidence to indicate that the twin embryos are monozygotic and hence were of the same sex—female.

As mentioned earlier, occurrence of twins among monkeys is not an unusual phenomenon, although it is rare. But the earlier work has not demonstrated the occurrence of unquestionable monozygotic synchorial twins among monkeys. In most earlier reports of twin births or twin embryos, either the two ovaries had released on ovum each or there were two distinct corpura lutea in one of the ovaries, thereby indicating that two ova had been released and had undergone independent fertilization and development. Hence the cases earlier described were fraternal twins.

The author expresses her thanks to Dr A. Gopalakrishna, Professor Emeritus for able guidance.

17 May 1983; Revised 30 August 1983

1. Hill, J. P., *Proc. Anat. Soc., J. Anat.*, 1926, **60,** 486.
2. Hill, J. P. and Hill, C. J., *C. R. Assoc. Anat.*, 1972, **22,** reunion (London), 264.
3. Wislocki, G. B., *Am. J. Anat.*, 1939, **64,** 445.
4. Schultz, A. H., *Zoologica*, 1921, **3,** 243.
5. Fitzsimons, F. W., *Am. J. Anat.*, 1939, **64,** 445.
6. Tomilin, M. I. and Yerkes, R. M., *J. Gen. Psychol*, 1935, **46,** 239.
7. Warwick, R. and Williams, P. L., *Gray's Anatomy*, Longman Group, 1973, p. 1356.
8. Karim, K. B. and Uma, G. Vasishta., *Proc. Natl. Acad. Sci. India.*, 1981, **B51,** 205.

A NOTE ON THE MITE, *PYEMOTES HERFSI* (OUDEMANS), ECTOPARASITIC ON DIAPAUSING PINK BOLLWORM LARVAE.

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PYEMOTES spp. have been mainly reported as external parasites of immature stages of Coleoptera, Hymenoptera, Lepidoptera, Diptera and Homoptera. Nangpal[1] observed *Pyemotes herfsi* (Oudemans) = *Pediculoides ventricosus* (Newport) as a parasite of pink bollworm under sub-tropical conditions. This was the only recorded species of parasitic Pyemotidae in India. However, 28 other mite species associated with various stored foods were reported[2]. Dinabandhoo and Dogra[3] observed the incidence of *Pyemotes herfsi* on Indian honey bee *Apis cerana*