Although the experimental period lasted for only three weeks, these results confirm that when ruminants are fed twice daily on a diet consisting solely or mainly of succulent foods, the daily intake of dry matter is directly related to the percentage of dry matter in the diet. It follows that if ruminants are fed solely or mainly on succulent foods, maximum performance can only be expected if the dry-matter percentage of the succulent foods is maintained at a sufficiently high level to ensure that the dry-matter percentage in the diet as a whole does not fall below some critical figure—probably somewhere between 20 and 25 per cent—but this point requires further investigation.

A fuller report of this and the experiments leading up to it is in preparation for publication.

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Chromosomes of the Indian Water Buffalo

THE number of chromosomes of the water buffalo (*Bubalus bubalis* L.) is a controversial issue (the names *Bubalus bubalis* L. and *B. buffelus* L. are synonyms of *B. bubalis* L.). Pchakadze¹ stated that it is $2n = 56$. Makino², on the contrary, reported the diploid number of chromosomes to be 48. In view of this disagreement, it was considered worth while to study the number of the Indian water buffalo.

Testicular materials, obtained by castration from 1-yr., 2½-yr. and 6-yr. old buffaloes of the Murrah breed, were fixed in Belling's modification of Nawaschin mixture, sectioned at 15 μ in thickness and stained in iodine crystal violet after overnight premordanting in 1 per cent chromic acid.

Examination revealed that the materials taken from animals aged 2½ yr. and 6 yr. were not suitable for spermatogonial chromosome count. A few good metaphase plates were, however, seen in these tissues. A large number of dividing cells were obtained in the material taken from the 1-yr. old animal. The study of the spermatogonial metaphase (Fig. 1) showed that the diploid number of chromosomes is 48. There are two types of chromosomes in respect of the position of the centromere: the first comprises four pairs with median or submedian centromere, and the second twenty pairs of rod-shaped chromosomes with terminal or nearly terminal centromere. Among the first group, there are two pairs of J-shaped chromosomes which are the longest in the complement. The pair next in size is also J-shaped, but its long arm is slightly smaller than that of the longest one, while the size of the short arm is the same as that of the longest pair. The fourth pair is a V-shaped one with equal arms. Among the rod-shaped chromosomes, the X-chromosome was found to be the longest and the Y seemed to be one of the smallest. Contrary to Makino, who observed that the X-chromosome was more deeply stained than others, no differential staining behaviour was noted in this chromosome. The number of chromosomes was also verified from the polar view of metaphase II, where there were 24 chromosomes of different sizes (Fig. 2). Our observation is in agreement with that of Makino.

(1)

(2)

Fig. 1. Spermatogonial metaphase of Indian water buffalo showing $2n = 48$ chromosomes. $\times 2,600$

Fig. 2. Second division metaphase plate (polar view). $\times 2,600$

This work was carried out at the Animal Genetics Section, Indian Veterinary Research Institute, Izatnagar, while one of us (M. K. D.) was a member of its staff.

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¹ Pchakadze, G., *C.R. Acad. Sci. URSS.*, **24**, 794 (1939).

² Makino, S., *Cytologia*, **13**, 247 (1944).

Micro-forceps and Micro-scalpels

SOME convenient glass micro-forceps are shown in Fig. 1. Type I are opened by their own resilience and closed by means of a tube fitting around them. In type II the reverse action is shown, closing being effected by resilience and opening by the force of a ball and rod. The two branches of the forceps are fixed in a tube of 1.5 mm. diameter, which is mounted on a de Fonbrune micromanipulator. A second tube, enclosing the first tube, can be made to