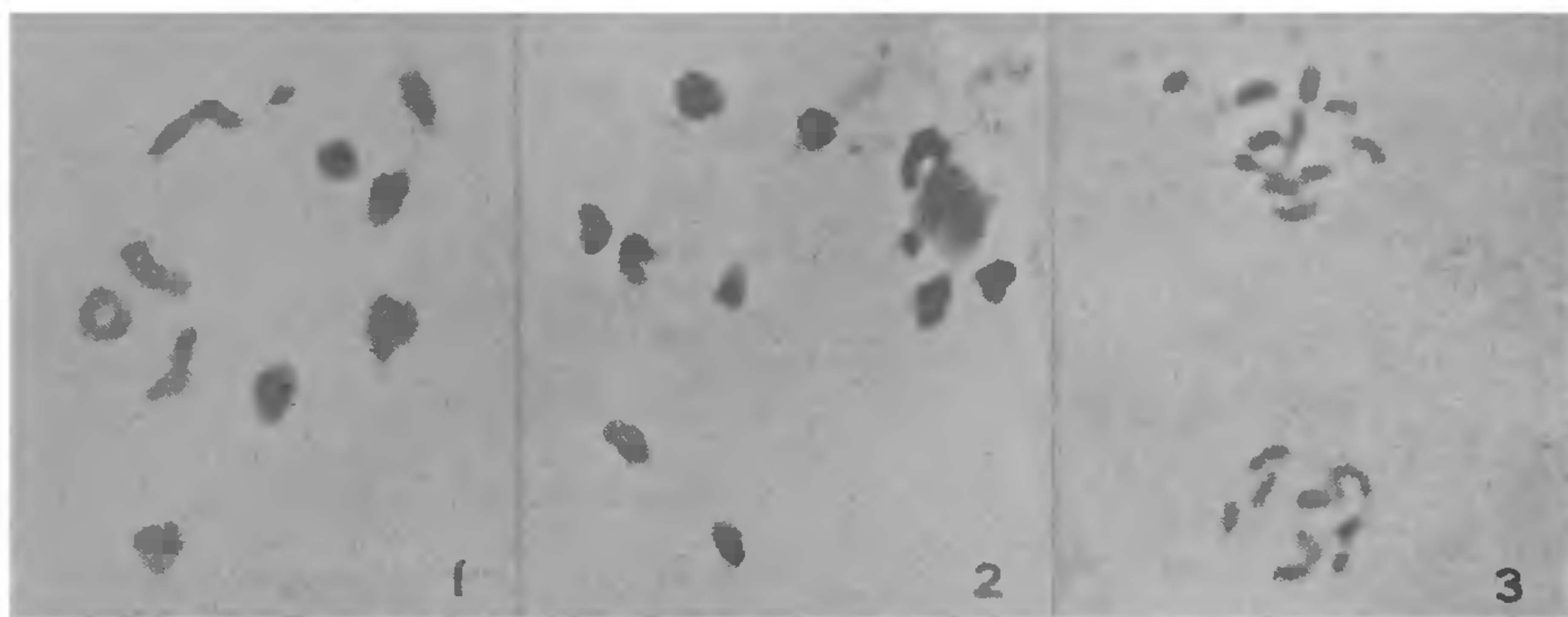


cycles and, therefore, is centric. In 1968, in order to study the frequency of transmission of the fragment to the progenies, two of the suckers of this plant were selfed, three suckers were used as female

The origin of the fragment chromosome, however, is not known.

Our thanks are due to Mr. R. Nageswara Rao for his assistance in photographic work.



FIGS. 1-3. Meiosis in Job's tears with  $2n=20 + 1$  fragment ( $\times 1,000$ ). Fig. 1. Diakinesis: 1 III and 9 II. Fig. 2. Diakinesis: 10 II and 1 I (fragment). Fig. 3. Telophase-I: 10:10 and the fragment at the upper pole.

and another three were used as male in crosses with the normal plants. The progenies were studied cytologically in 1969 and the results are shown in Table I.

TABLE I  
Transmission frequency of the fragment chromosome to the progenies under self-pollination and controlled cross-pollinations in Job's tears

Pollinations	Progeny		
	$2n=20 + 1f$	$2n=20$	Total
1. $2n=20 + 1f$ selfed	2	18	20
2. $2n=20 + 1f \times 2n=20$	2	20	22
3. $2n=20 \times 2n=20 + 1f$	..	24	24

$f$  = fragment.

Although the number of plants examined in each of the progenies of the selfed and controlled crosses was not high, it is quite apparent from the data that the fragment was transmitted through the female gametes in a low proportion of the cases (items 1 and 2, Table I), whereas its transmission via male gametes was not observed (item 3, Table I). Probably the male gametes carrying the fragment were either non-functional or incapable of competing with the normal male gametes in fertilization.

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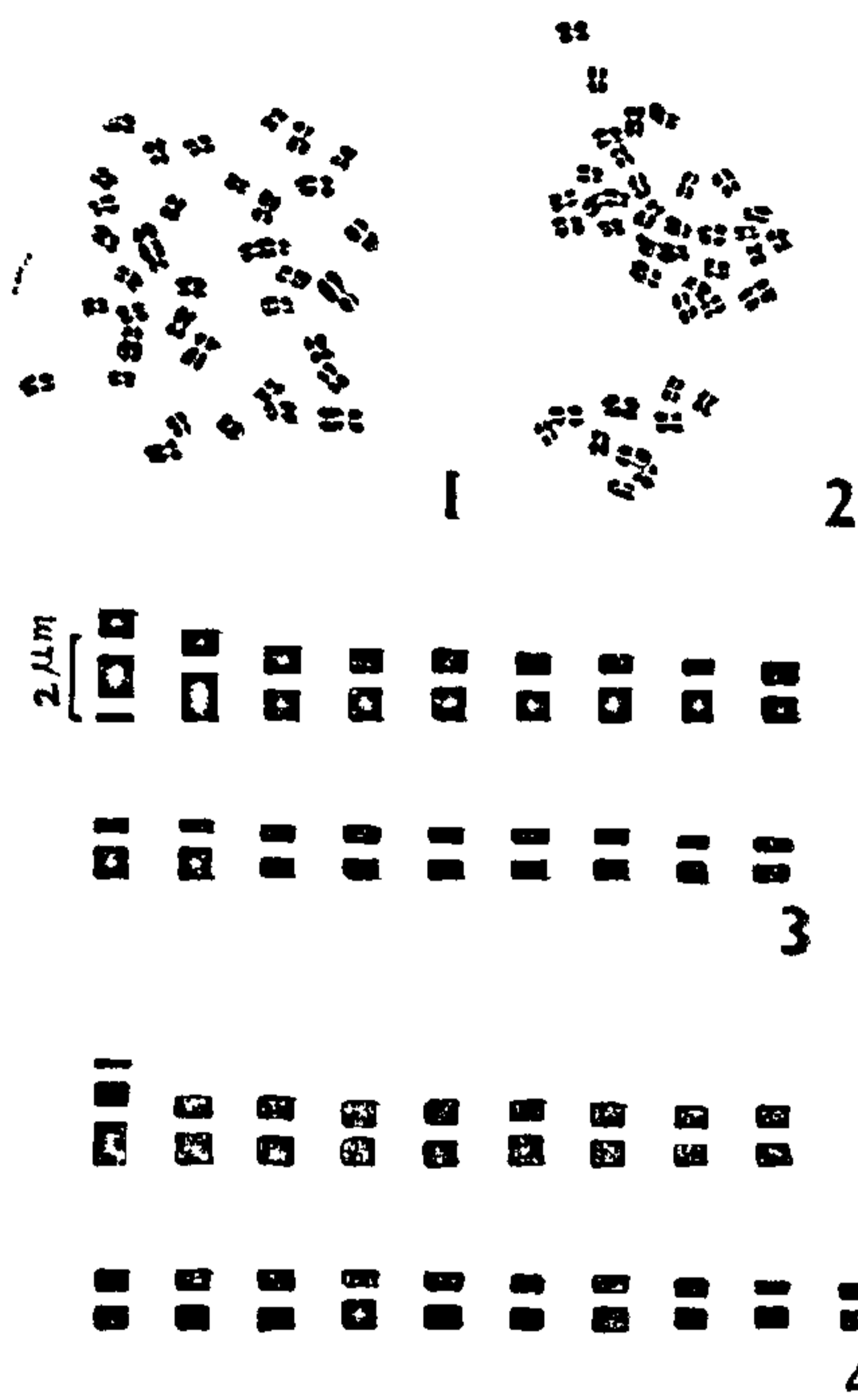
#### CYTOLOGICAL STUDIES IN *Fuirena* ROTTB. (CYPERACEAE)

THE earlier cytological information pertaining to the genus *Fuirena* concerns only the chromosome numbers of some Indian species<sup>1-8</sup>. The present contribution deals with the karyotype and meiosis in *F. uncinata* (Willd.) Kunth and *F. trilobites* C. B. Clarke.

*Fuirena uncinata* ( $2n=36$ ).—The length of chromosomes in the somatic complement ranges from  $0.7 \mu\text{m}$  to  $1.8 \mu\text{m}$ . The total length of diploid complement is  $40.3 \mu\text{m}$ . The karyotype consists of 10 pairs of chromosomes with median centromeres and 8 pairs with submedian centromeres, the longest pair of the latter type possesses satellites in the long arms (Figs. 1, 3).

*Fuirena trilobites* ( $2n=38$ ).—The chromosomes in the somatic complement range from  $0.7 \mu\text{m}$  to  $1.7 \mu\text{m}$  in length, the total length being  $40.9 \mu\text{m}$ . There are 17 pairs of chromosomes with median centromeres, and 2 pairs with submedian centromeres.

meres one of which having satellites in the short arms (Figs. 2, 4).



FIGS. 1-4. 1, 3 *Fuirena uncinata*; 2, 4. *F. trilobites*. 1, 2. Somatic chromosomes; 3, 4. Idiograms.

Meiosis is normal in both the species.

Four different chromosome numbers have been reported in the 5 Indian species of *Fuirena* that have been investigated so far. These are not in multiples of a single basic number indicating the presence of aneuploid series in the genus. *F. uncinata* with  $2n = 36$  represents the lowest level of the series. While *F. ciliaris*<sup>2,3</sup> and *F. trilobites* show  $2n = 38$ , *F. wallichiana*<sup>1</sup> and *F. umbellata*<sup>3</sup> show  $n = 38$  and 26 respectively. *F. wallichiana* appears to be a polyploid derived from  $x = 19$ . Therefore, the indication of both polyploidy and aneuploidy is evident in *Fuirena*. Besides the difference in chromosome number, the 2 species studied here reveal certain differences with respect to their karyotypes (cf. idiograms). These differences appear to indicate the role of structural alterations in the evolution of species in the genus *Fuirena*.

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#### MEIOSIS IN *GRAPTOPHYLLUM PICTUM* GRIFF

THIS communication concerns the first record of chromosome number, besides giving the meiotic behaviour in *Graptophyllum pictum*, an ornamental shrub of Acanthaceae.

From an analysis of 60 pollen mother cells, 30 at diakinesis and 30 at metaphase I, the haploid chromosome number of this species is determined to be  $n = 18$  (Fig. 1). Meiosis is irregular and is characterised

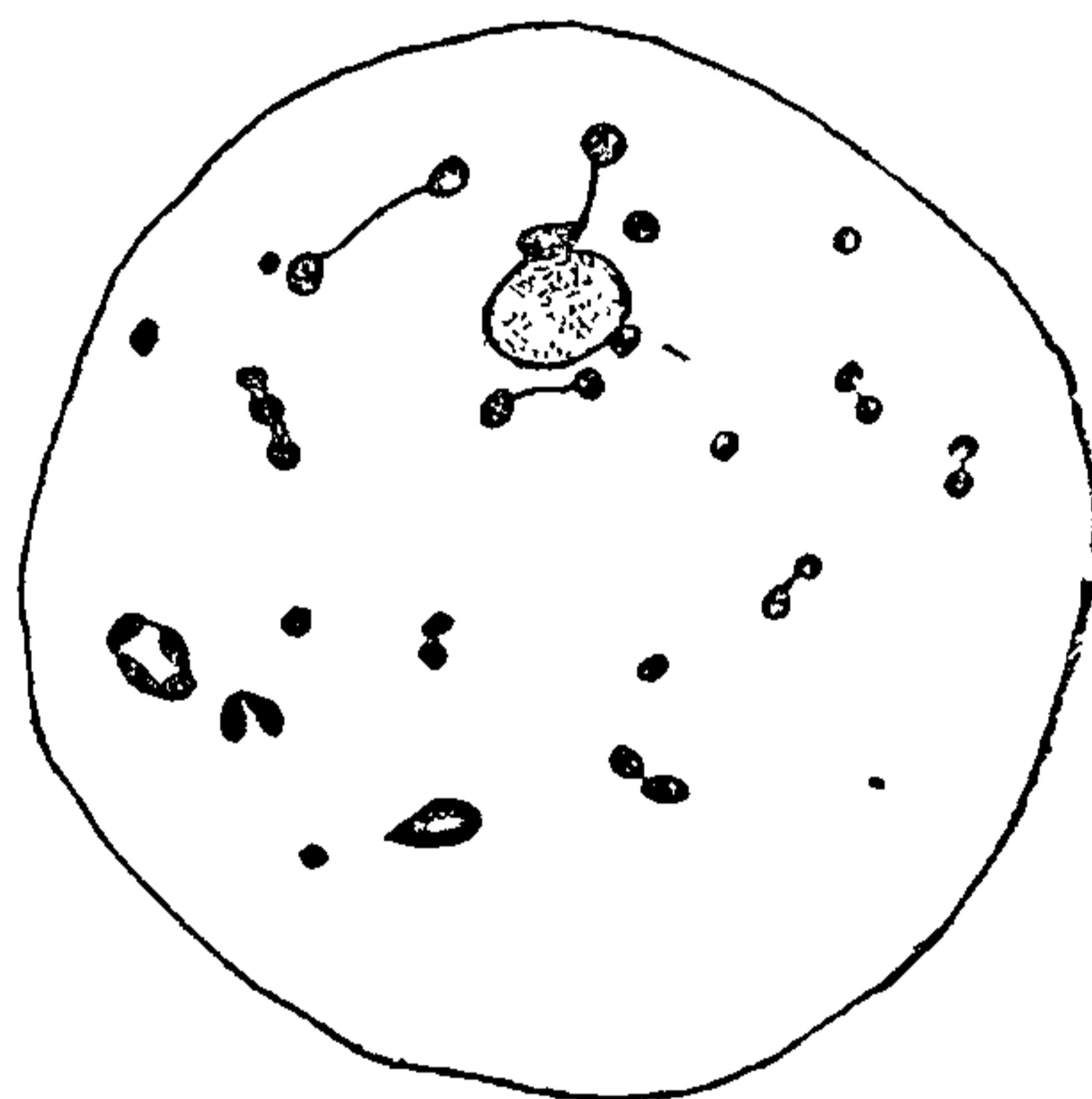


FIG. 1. Diakinesis showing  $n = 18$  number with  $1\text{ IV} + 1\text{ III} + 10\text{ II} + 9\text{ Is}$ .

by the presence of quadrivalents (6.6% at diakinesis and 5.9% at metaphase I) and trivalents (10.2% at diakinesis and 11.1% at metaphase I). However, their number is very low when compared to the high frequency of bivalents (60.9% at diakinesis and 60.8% at metaphase I). The multivalents are more often of the chain type with terminal chiasmata. Next to bivalents, univalents were present in high frequency (21.8% at diakinesis and 22.2% at metaphase I). Anaphase and telophase segregations were highly irregular with 1-6 laggards and micro-