

each side of the midrib as in the above-mentioned species. The primary veins divide dichotomously giving off secondary ones at a wide angle which branch and anastomose forming irregular areoles with blindly ending veinlets as in Dipteridaceæ both living and fossil. The occurrence of dichotomous fronds in the present case which probably represents a reversion to the ancestral character is a further support in favour of the genus being placed in the Dipteroids as one of the modern representative of Dipteridaceæ that have advanced to the level of the Mixtæ.

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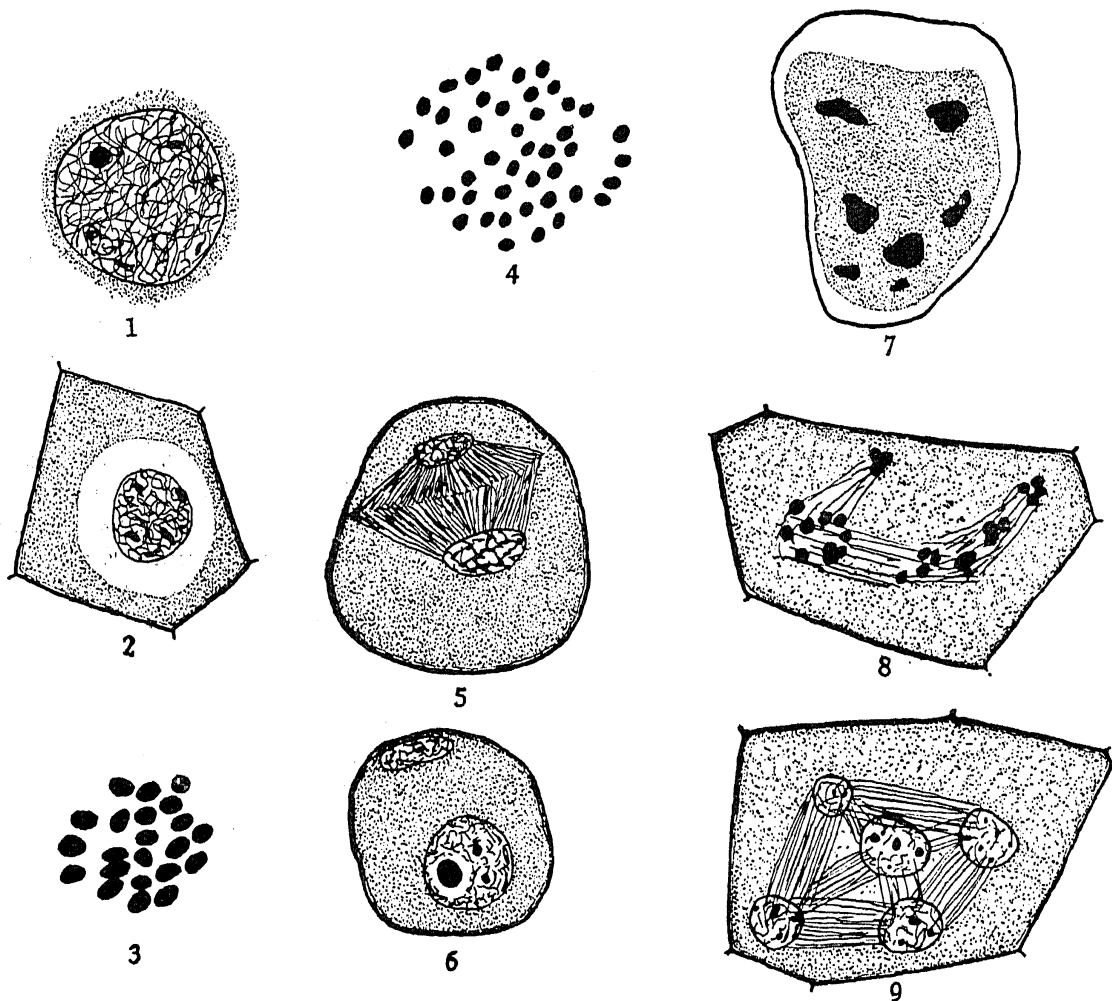
**Pollen Sterility in *Zeuxine sulcata* (Lindley).**

IN *Zeuxine sulcata*, some of the microspore mother cells go through the first meiotic

threads (Fig. 1) and later on the cytoplasm withdraws from the nuclear membrane (Fig. 2).

In the cells that show normal division, 22 bivalent chromosomes can be counted on the heterotypic metaphase plate (Fig. 3). During the very early anaphase when the chromosomes are being just pulled apart, occasionally the univalent chromosomes lie well spread out on the spindle area, so that in favourable preparations 44 univalents can be clearly seen (Fig. 4), each univalent chromosome being almost half in size of a bivalent. So the 22 bivalents seen on the heterotypic metaphase plate can be safely taken as the haploid number for the plant. Moreover, the same number of bivalents have been counted during the heterotypic division of the megaspore mother cell also.

The second meiotic division seems to be



Figs. 1 to 9.

division normally, while others, in the same pollinium, show signs of degeneration even from an early stage. In such cells the nuclei show a dense reticulum of thin chromatin

suppressed; hence "diads" of microspores are formed. The nucleus of the microspore on dividing (Fig. 5) gives rise to a vegetative nucleus and a generative nucleus (Fig. 6)

but these spores are not functional since they decay gradually (Fig. 7).

In some pollinia abnormal spindles (Fig. 8) are formed in the mother cells during the heterotypic division. This results in the formation of non-functional supernumerary nuclei (Fig. 9). Finally the whole tissue of the pollinium is attacked by a fungus and intracellular digestion occurs.

The meiotic irregularities in the microspore mother cells and the final pollen sterility is in correlation with the apomictic development of embryos reported before\* in the same plant.

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#### A Peculiar Cotton Plant.

THE number of seeds in the loculi of cotton is a character of some taxonomic importance. Although Watt<sup>1</sup> (1907) is not prepared to attach much importance to this character, Lewton<sup>2</sup> (quoted by Harland, 1932) considers this as a character of basic importance and has transferred *G. drynarioides*, Seem, to a new genus *Kokia*—because these plants have axillary flowers and the loculi are one-seeded. In view of the importance of the number of seeds per loculus, the following description of a plant which was met with in a field of Mollisoni cotton (*G. Indicum*, var. *Mollisoni*, Gammie) near Chak Jhumera in the Lyallpur district of the Punjab would be very interesting.

Stem, weak, about 3½ feet high, but due to weakness was bending down. Branches long and trailing giving the plant a bushy appearance. Leaves deeply incised, and very much reduced in size. Buds were very profuse, corolla colour yellow and a high shedding of bolls. The few bolls which were present were very small in size and invariably 3-locked. Each lock had six or seven ovules, but only one mature seed resting on the base of the lock. When the bolls were matured, only one sound seed

\* *Curr. Sci.*, 1932, 1, 102, also Errata Index to Vol. 1, page xiii.

<sup>1</sup> Watt, Sir George, *The Wild and Cultivated Cotton Plants of the World*, 1907, Longmans, Green & Co., London.

<sup>2</sup> Lewton, F. L., Quoted by Harland, *Bibliographia Genetica*, 1932, 9.

was found in each loculus and the rest of the ovules were very much shrivelled up. The seeds were downy and had very sparse short lint hairs.

Four seeds were collected from this plant. One was found to be faulty, but the other three germinated very well. I have, however, not been able to rear plants and all the seedlings died one after the other. But so far as I could study death was not caused by the operation of genetic lethal factors; but was only a matter of accident.

In all probability the above plant was a mutant and I am putting it on record for the information of other research workers.

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#### On the Trematode Infections in Certain Indian Fishes.

LONG ago, in 1910, Captain Parker obtained some immature stages of a fluke from "Mahaseer", *Barbus tor* (Ham. Buch.) which was first named *Isoparorchis trisimilitubis* and then later on proved to be a synonym of *I. hypselobagri* (Billet, 1898) by Ejsmont. In 1913 Southwell<sup>1</sup> obtained some specimens of this fluke from the gas-bladder of a common siluroid fish, *Wallago attu* (Bl. Schn.). In the same year he also discovered some other Trematodes, such as *Anaporrhutum albidum*, *A. largum* Lühe, *A. richiardi* Lopez from some Clasmobranch fishes, viz., *Chiloscyllium indicum* (Gmel.), *Stegostoma tigrinum* (Gmel.) and *Aëtobatis narinari* (Euphrasen) respectively. Furthermore, Southwell and Prashad<sup>2</sup> described some five specimens of flukes (which they simply referred to as Trematode sp.) obtained from certain food-fishes, viz., *Ophiocephalus marulius* (Ham. Buch.), *O. striatus* (Bloch.), *Trichogaster fasciatus* (Bl. Schn.) and *Sacbranchus fossilis* (Bloch.). In 1921 Bhalerao and Woodland rediscovered some specimens of *I. hypselobagri* (Billet, 1898) from *Wallago attu* from the same region as Southwell did. Chandler<sup>3</sup> in 1926, however, recovered some large flukes belonging to the last-named species from the stools of a human patient

<sup>1</sup> Southwell, *Rec. Ind. Mus.*, 1913, No. 9.

<sup>2</sup> Southwell and Prashad, *Ibid.*, 1918, No. 15.

<sup>3</sup> Chandler, *Ind. Jour. Med. Res.*, 1926, 14.