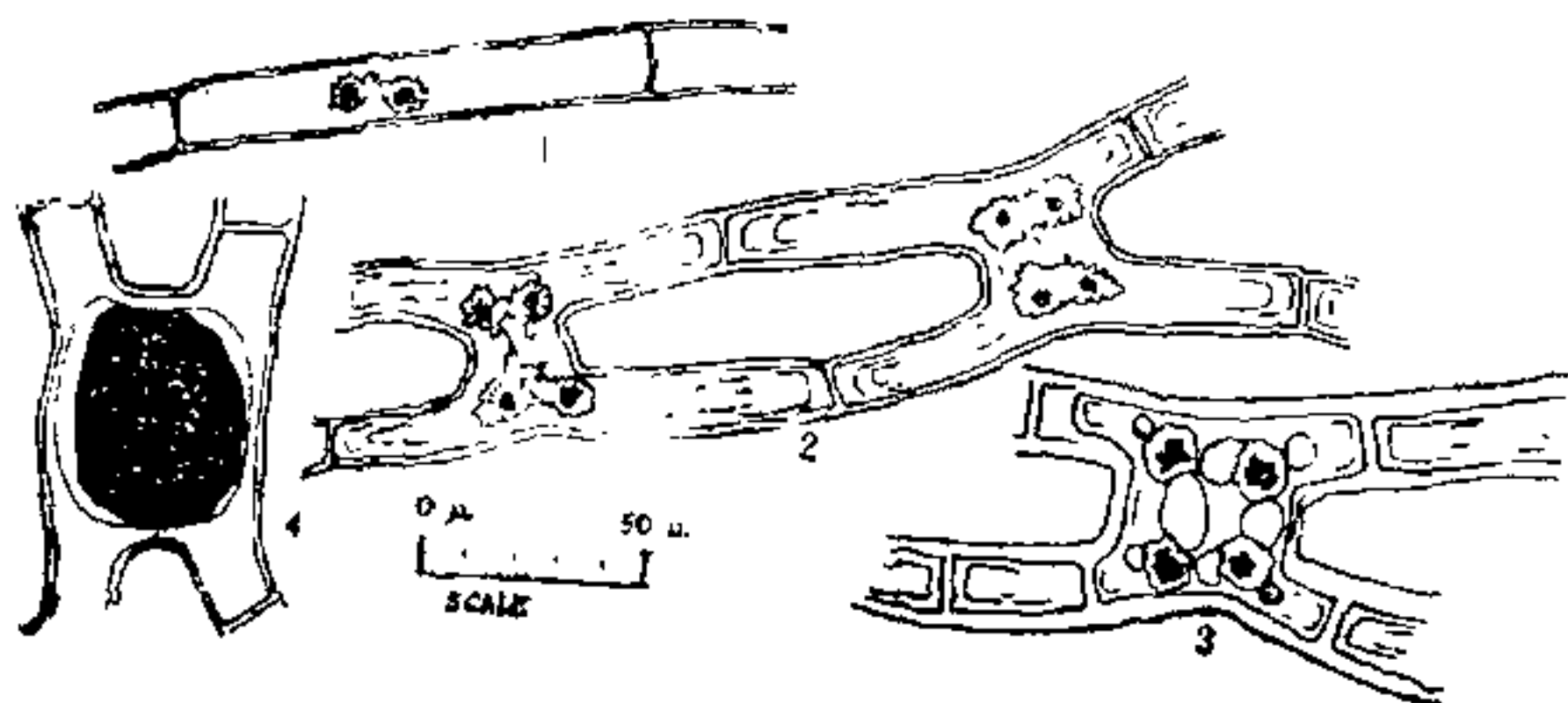


**A NEW SPECIES OF *ZYGNEMOPSIS*
(SKUJA) TRANSEAU, 1934
FROM THE CALCUTTA—
1961 NATIONAL AGRICULTURAL FAIR**

THE alga was collected from the freshwater shallow pool created by the artificial fountain near the second gate of the National Agricultural Fair, Calcutta—1961, at Taratola.

Zygnemopsis queense Das sp. nov., the species has been established in the following way:

Cells (Fig. 1): Cylindrical, length much greater than breadth. Protoplast contains two stellate chloroplasts with a single massive pyrenoid at the centre. Gametangium filled with dense pectic cellulose-colloid during reproduction. **Filaments** (Figs. 2 and 3): Unbranched, sexually reproduced by scalariform conjugation; zygote forming at the middle of the conjugating tube (Fig. 4). Lateral conjugation not observed.



FIGS. 1-4

No aplanospore found. **Thalium**: Free floating in masses, also submerged in freshwater, well aerated. Pale green in colour, to brown when mature. **Coll.**: C. R. Das, Calcutta-1961 Fair, 26-2-1961; C. R. Das and Dr. G. Mitra, Calcutta-1961 Fair, 10-3-1961. **Det.**: C. R. Das, 11-3-1961.

DIAGNOSIS

Cells, 80–120 μ by 12–18 μ . **Zygotes**, 40–65 μ by 35–50 μ .; quadrangular and round. Spore wall golden yellow, cytoplasmic remains present during reproduction.

Cellulae 80–120 $\mu \times$ 12–18 μ . **Cellulae genitivae** 40–65 $\mu \times$ 35–50 μ .; quadrangulae et globosae. **Monenium cellulae genitivae aureus flavus**, reliqua celluli genitivi qui hodie est.

DISCUSSION

It would be a new species of the genus *Zygnemopsis* distinguishable from the genus *Zygnema* at the reproductive phase having the cell contents being replaced by refractive pectic material, which may be smooth or lamellated. The specific name could be proposed as *Zygnemopsis queense* sp. nov., to record the historic visit of Her Majesty the Queen Elizabeth II of England at the National

Fair, Calcutta—1961 from where the species had been collected.

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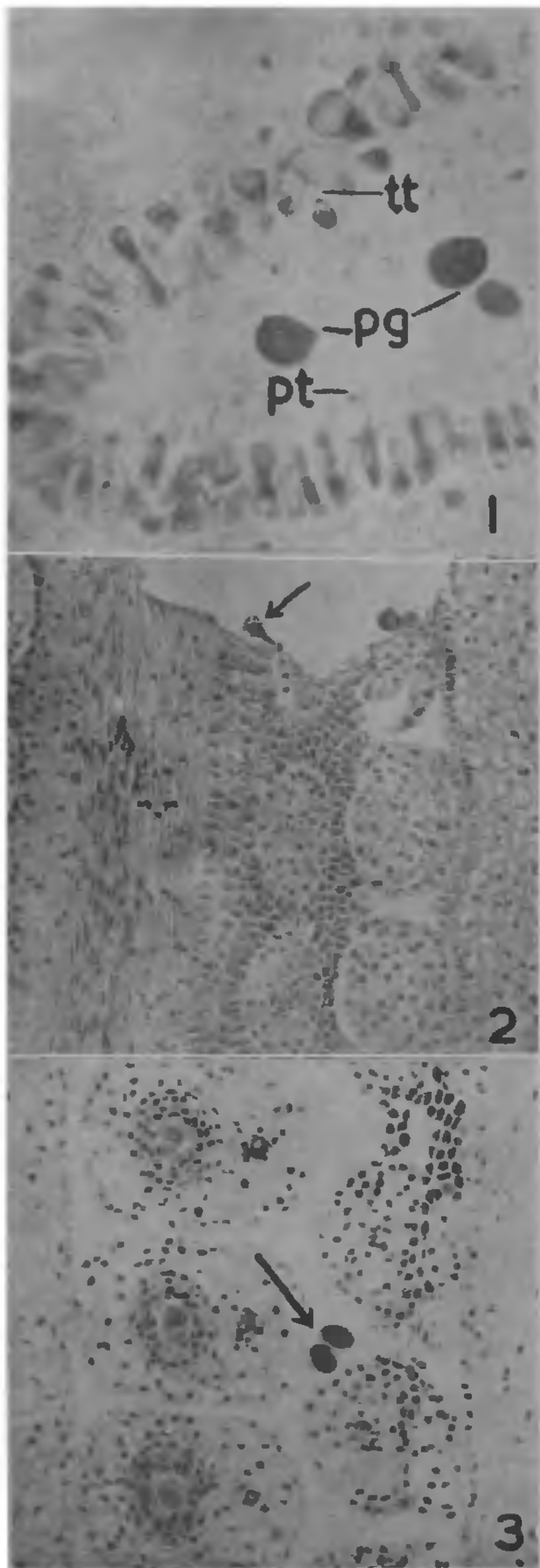
**INTRACARPELLARY POLLEN GRAINS
IN *FRITILLARIA* AND *LILIUM***

INTRACARPELLARY pollen grains were first observed in *Eutomopsis lanceolata* (B.M. Johri¹) and later in some other plants (see Puri; Adatia; Islam; Johri and Eunus; Eunus; Haque; Johri and Bhatnagar; Panchaksharappa²⁻¹⁰). During an investigation on the morphology of the gynoecium of *Fritillaria roylei* and *Lilium tigrinum*, I also observed a similar phenomenon which merits a brief report.

The gynoecia of *Fritillaria roylei* Hook. were fixed in formalin-acetic-alcohol from Hattoo (Narkunda, Simla Hills) in May 1961, and those of *Lilium tigrinum* Ker-Gawl. from Mussoorie in September 1960. They were processed in the usual way. Serial sections cut 8–17 microns thick were stained with a combination of safranin and fast green, or Heidenhain's hæmatoxylin alone or counter-stained with fast green.

Fritillaria roylei—In a cross-section the style shows a hollow, triangular canal which is widest just below the region of division of the style. The latter has three reflexed branches. The bicelled pollen grains were observed throughout the length of the styler canal (Fig. 1), and occasionally in the ovary. Sections of a single style showed nine pollen grains. In two instances two pollen grains had germinated in the ovary in close proximity to the ovules (Fig. 2). It is to be noted that the average diameter of the styler canal is 440 microns, whereas that of pollen grains varies from 30 to 40 microns.

Lilium tigrinum—The style is 15–20 cm. long and markedly curved. The stigma is papillate and has three ridges. The styler canal is broadest just below the stigma and gradually narrows downwards. The pollen grains, which are bicelled, were observed not only in the



FIGS. 1-3.

Figs. 1-2. *Fritillaria roylei*. Fig. 1. Transection of a part of the style showing three pollen grains in the stylar canal; one on the extreme left shows signs of germination, $\times 101$. Fig. 2. Longisection of the upper part of

ovary; note a germinating pollen grain (arrow-marked) in the locule, $\times 45$. Fig. 3. *Lilium tigrinum*— Longisection of middle portion of ovary showing two pollen grains living adjacent to ovules (arrow-marked), $\times 52$. *pg*, pollen grain; *pt*, pollen tube; *tt*, transmitting tissue

stylar canal but also in the ovary (Fig. 3). The mean diameter of the stylar canal is 2,500 microns and that of the pollen grains 55-70 microns.

How the pollen grains find their way into the stylar canal and ovary is not clear. Probably they are sucked into the ovary by some exudate from the stigma (see Sahni¹¹). While the pollen grains mostly germinate on the stigma, they often germinate equally well on the surface of the style, in the stylar canal, or even in the ovary. In both the plants the cells of the stigmatic epidermis, stylar canal and the placental epidermis are papillate and generally uninucleate. In *Zephyranthes lancasteri* sometimes the pollen tubes may enter the style even through the stomata and make their way into the transmitting tissue (M. M. Johri, Unpublished). Whether the occurrence and germination of pollen grains in the stylar canal indicates any direct or indirect homology with plants like *Gnetum* (see Vasil¹²), where also the pollen grains sometimes germinate in the so-called micropylar tube, is difficult to interpret. With the present state of our knowledge perhaps we cannot attach any evolutionary significance to this phenomenon. Instead, it seems more important to initiate a detailed study of the structure of the style and stigma in relation to pollen tube growth.

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