raalar white line of broad flat scales over the wing root which is continued almost up to the scutellum. The abdominal lateral white markings are connected with the tergal bands, which is not so in *albopictus*. However the diagnostic feature of *Ae* (*Stg*) *krombeini* is the form of the claspette in the male terminalia, which when dissected has the distal part expanded and square in shape in lateral aspect[1]. Our material has kindly been compared with the type in US National Museum by Dr. Yiau-Min Huang, who has confirmed the determination.

Ae (*Stg*) *krombeini* was invariably found breeding in association with *Ae* (*Stg*) *albopictus*, and sometimes also with *Ae* (*Stg*) *subalbopictus*, *Ae* (*Fin*) *aureostriatus* var. *kanaranus*, *An* (*Cel*) *culicifacies*, *Cx* (*Lop*) *uniformis*, *Cx* (*Cul*) *pallidothorax*, *Or anopheloides*, and *Tx* (*Tox*) *splendens*. It is easily colonised in the laboratory, where it has accepted human and chicken blood. Huang[1] recorded this species feeding on humans in nature. Its distribution in India and the disease potential of this species needs further study.

26 March 1987

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ON THE TRANSFER CELL-LIKE NUTRITIVE CELLS OF THE GALLS INDUCED BY THRIPS (THYSANOPTERA: INSECTA)

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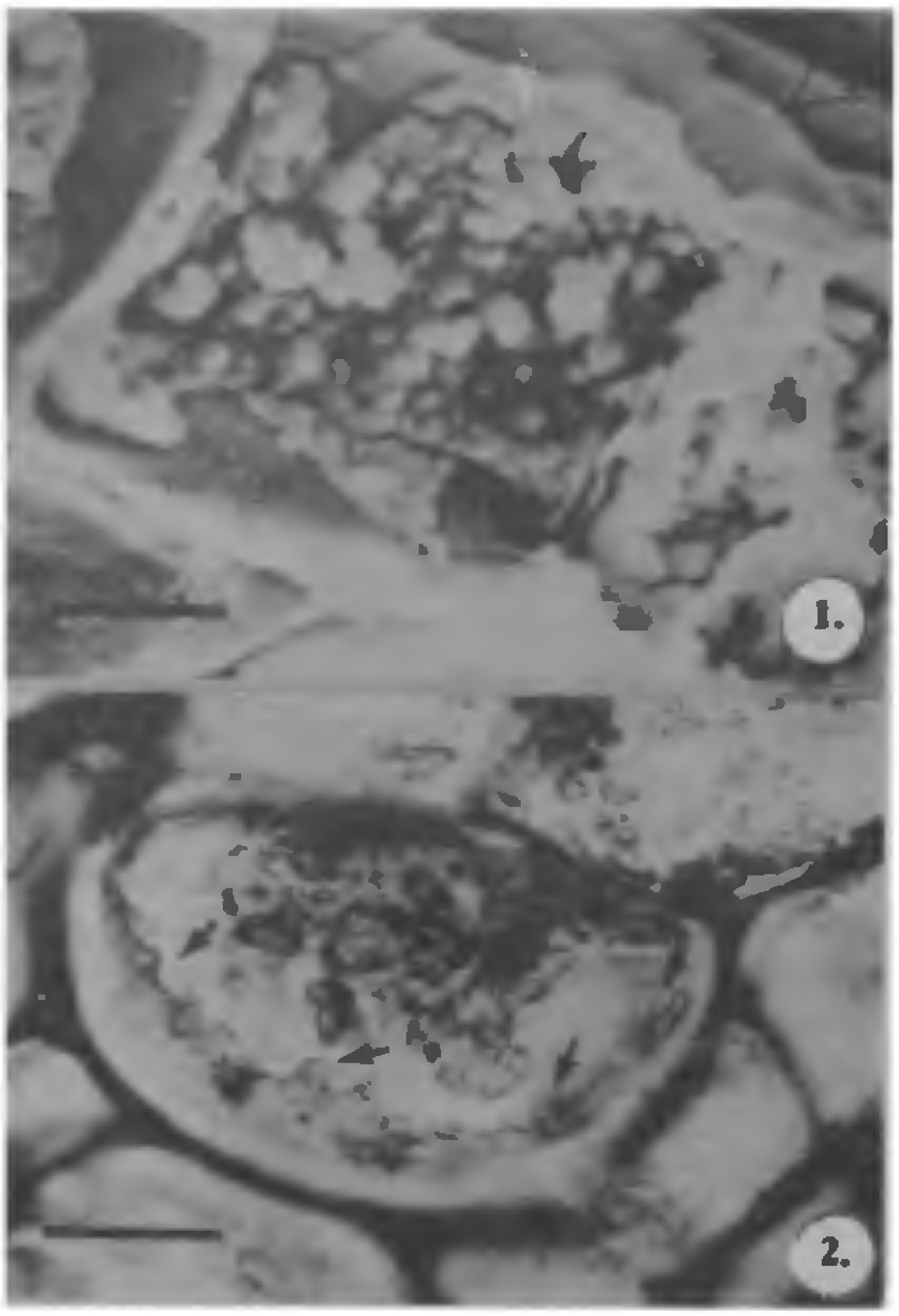
DURING development, the host tissues of the galls of thrips undergo profound physical stress as a result of feeding injury[1] and physiological stress as a consequence of the discharge of salivary chemicals[2]. Either to overcome this stress or to achieve the 'gall-form', plant tissues show different kinds of morphogenetic adjustments. Among the various developmental events, the behaviour of the nutritive cell walls appears interesting. We have earlier reported abnormally large, callosic wall thickenings in the galls of *Pavetta hispidula* Hiern. induced by *Teuchothrips longus* (Schmutz)[3]. While these thickenings are massive and localized to specific areas of the host cells, observations on the morphology of the walls of the nutritive cells of the epiphyllous galls of *Memecylon edule* Roxb. and *M. lushingtonii* Gamble induced by *Crotonothrips dantahasta* (Ramk.) and *C. memecylonicus* Anan. respectively suggest that these cells appear very similar to the 'transfer cells', also known from the cecidial systems of ectoparasitic[4,5] and endoparasitic[6] nematodes.

The nutritive cells of *Memecylon* galls (upper epidermal and a few layers of subjacent mesophyll cells) show numerous warty, peg-like ingrowths along the inner sides of the walls, extending into the cytoplasm (figure 1). Each ingrowth appears to be a stubby protuberance (5–20 μm across). With the ageing of cells these wall ingrowths grow larger in width, though not appreciably in height and finally coalesce among themselves. The intensity of their development and distribution more or less remains uniform in the gall-mesophyll cells (figure 2) till reaching the vascular trace that includes hyperplasied elements. Interestingly, these wall ingrowths are almost absent in the mesophyll cells that occur beneath the vascular strand (as in transverse sections).

In a system such as a gall, the insect imposes upon the host tissue a demand for a continuous supply of nutrients and the polarized distributional pattern of these specialized cells along the upper sides of the gall-leaf establishes a functional connection with the vascular strand, indicating clearly that the thrips are able to elicit a specific subcellular response in the host cell machinery increasing the surface area of the wall and eventually that of the plasmalemma. The restriction of warty ingrowths to the nutritive area of the gall indicates their potential role in the possible apoplastic movement of the solutes from the vascular region to the nutritive area; further, the nature of development involving the loss of shape and fusion among themselves with ageing appears very similar to the nature of functioning[7] of the syncytial transfer cells.

Since the transfer cells are known to possess wall ingrowths that are slender, cylindrical, and invariably branched[8], it appears problematic to consider the nutritive cells of *Memecylon* as transfer cells. The



Figures 1 and 2. 1. Epidermal (nutritive) cell of the gall of *Memecylon edule* showing the wall ingrowths (SEM); arrow — upper leaf surface. Bar = 100 μm; 2. Mesophyll (nutritive) cell of the gall of *Memecylon lushingtonii* (Light micrograph); arrows — wall ingrowths. Bar = 100 μm.

wall ingrowths in the nutritive cells of *Memecylon* are unbranched, stubbier and possess a width that is 10–15 times greater than those reported from the root-knots of *Meloidogyne* on dwarf balsam[9]. However, acknowledging the upper mesophyll and epidermal cells of the galls of *Memecylon* as a nutrient sink and assuming that the variations in the size and shape of wall ingrowths are a specific response of this particular host under stress, these specialized cells may have a role to play, similar to the transfer cells.

The author is grateful to Prof. T. N. Ananthakrishnan for guidance and useful criticisms on the manuscript.

19 February 1987

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