algal felts and dense moss polsters induce the development of travertine mainly by providing spongy surfaces which can absorb, retain and expose copious thin films of water for effective evaporation and consequent diffusion of CO_2 from the calcareous spring water thus causing the precipitation of $CaCO_3$ in the form of travertine. The mineral matter (calcite) hardens round the mosses taking the mould of their forms and these and other plants act as nuclei around which travertine is deposited.

The vigorous growth rate of these organisms (algae and mosses) seems to exceed the rate of carbonate deposition so that the process of getting cemented below and growing above is continued and the tufa also "grows" up.

These observations generally confirm the views held by Emig[6-7] about the role of plants in the mechanism of travertine deposition at Oklahoma. They also point to the calcicole character of the tufaceous bryophytes, algae and other plants and their indicator value. It would indeed be worthwhile trying some of the angiosperms growing on tufa for cultivation in alkali soils.

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X-RAY INDUCED ANEUPLOIDY IN *CAPSICUM ANNUM*

THE induction of aneuploidy has been useful in breeding crop plants. Experiments in bread wheat[1] demonstrate the possibility of transferring beneficial chromosomes from comparatively less useful types *via* aneuploids. Breeding for aneuploids with a view to identifying the chromosomes and linkage groups has also been described in other crops such as barley[2], tomato[3] and groundnut[4]. The occurrence of aneuploids in members of Solanaceae was reported by Hermsen[5]. The present study concerns the behaviour of the aneuploid chromosome in meiosis from X 2 generation obtained from X-ray irradiated seeds following presoaking.

The seeds of *Capsicum annum* ($2n = 24$) obtained from National Seed Corporation of India, Warangal Branch, were soaked for 6 hours and exposed to radiation at 4000 rads. Meiosis in these plants was studied after fixing the flower buds in acetic acid-alcohol (1 : 3) and squashing the anthers in aceto-carmine. Mitotical and meiotical aberrations and morphological variations were observed in X 1 generation which were continued to X 2 generation in order to stabilize the mutants.

In meiotic studies of X 2, 90% of their pollen mother cells revealed the presence of an extra chromosome (Fig. 1). Observations on the morphological variations, meiotic aberrations and their subsequent behaviour indicated that all the mutants and their X 2 plants carried chromosomal anomalies.

(1)

(2)

(3)

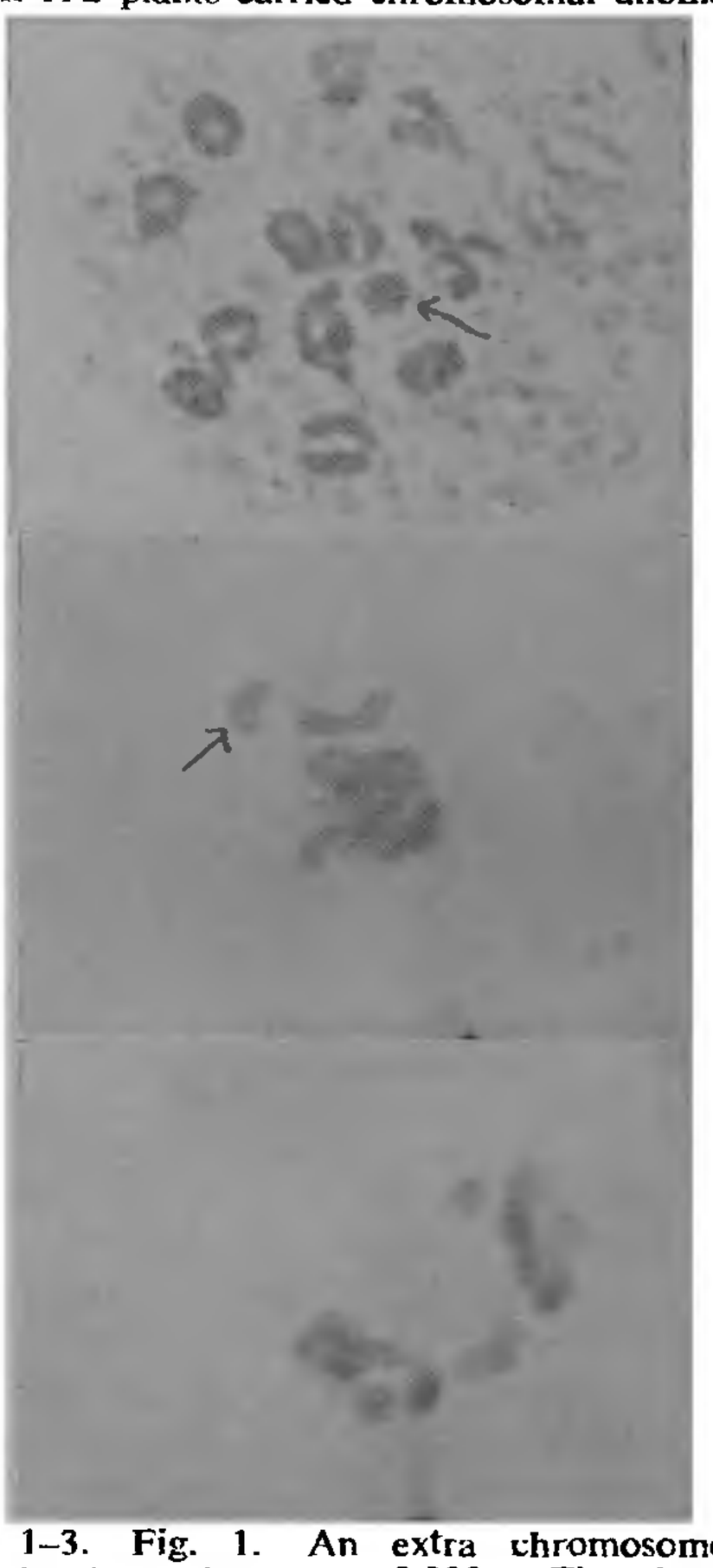

FIG:. 1–3. Fig. 1. An extra chromosome at Diakinesis (arrow) × ca. 2,000. Fig. 2. The irregular orientation of the extra chromosome at metaphase I (arrow) × ca. 2,000. Fig. 3. Anaphase I with lagging and a bridge (× 2,000).

The most common anomaly was the formation of univalent at diakinesis and the subsequent disturbance resulting from it, such as irregular orientation at metaphase I (Fig. 2) and lagging at anaphase I (Fig. 3).

All the mutants were characterized by the increase in the size of the flower, the height and the yield. Similar characters were observed in 60% of the total number of two hundred plants. While Patil[6] reported adverse effects on *Arachis hypogaea*, economically useful characters such as increase in the yield and early maturity were seen in *Capsicum annum*.

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STOMATAL POLYMORPHISM IN *PRUNUS PADUS* L.

WHILE studying the epidermal structures in Rosaceae, the authors have observed polymorphic stomata in *Prunus padus* L. Since polymorphic stomata have not been reported so far for any member of the Rosaceae, it prompted the publication of this report.

The stomata were studied from the mature leaves obtained from the herbarium specimens of *Prunus padus* collected from Siklis in Nepal. The leaves are hypostomatic with ranunculaceous type of stomata. The stomata were measured at random from different regions of the same leaf and when the measurements (length/breadth) were plotted on a graph, the stomata fell in three distinct groups (Fig. 1). These three groups of stomata may also

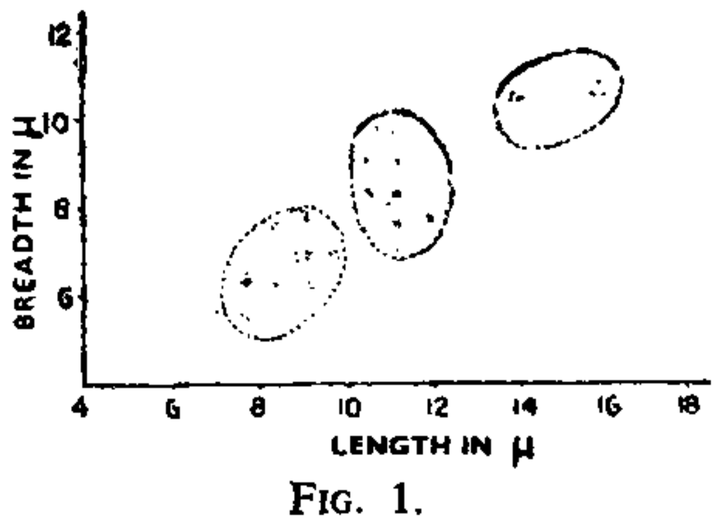

FIG. 1.

be distinguished on the basis of striations pattern. In the largest stomata, the striae extend in all directions with the radiating centres at frequent intervals around the guard cells. The striae arise in two lateral groups in the stomata of medium size. The centre of radiation of striae is not traceable in the smallest stomata and they pass parallel to the guard cells. The average number of stomata per sq. mm is 604 taken all the three types together. Out of these 53·1% are the smallest; 30·4% of the middle size and 16·5% of the largest size. The means and standard deviations of the three sizes of stomata is given in Table I.

TABLE I

	Size of stomata in μ		
	Small	Medium	Large
Length	8·5±·6	11·4±·5	15·1±·7
Breadth	6·4±·6	8·6±·9	10·5±·3

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OXYGEN CONSUMPTION AND METABOLIC RATE IN RELATION TO BODY SIZE IN *MARTESIA STRIATA* (LINN.)

STUDIES on the oxygen consumption of marine wood boring organisms are very few[1-4]. Eltringham[4] recorded consumption of oxygen in relation to salinity in a crustacean wood borer *Limnoria*. Lane and Co-workers[1,2] examined the oxygen consumption of both adult and larval forms of molluscan wood borer *Teredo*. In India, respiratory studies on the pholad wood borer *Martesia fragilis* in relation to body size have been undertaken from Madras harbour[3]. Water filtration rate of another pholad *M. striata*, of Visakhapatnam, has been studied by Nagabhushanam[5], but the relationship between body size and oxygen consumption of this local species is not known. In the present investigation, work was therefore initiated to examine the respiration of *M. striata* (Linn.) and to determine the metabolic rate in relation to body size.