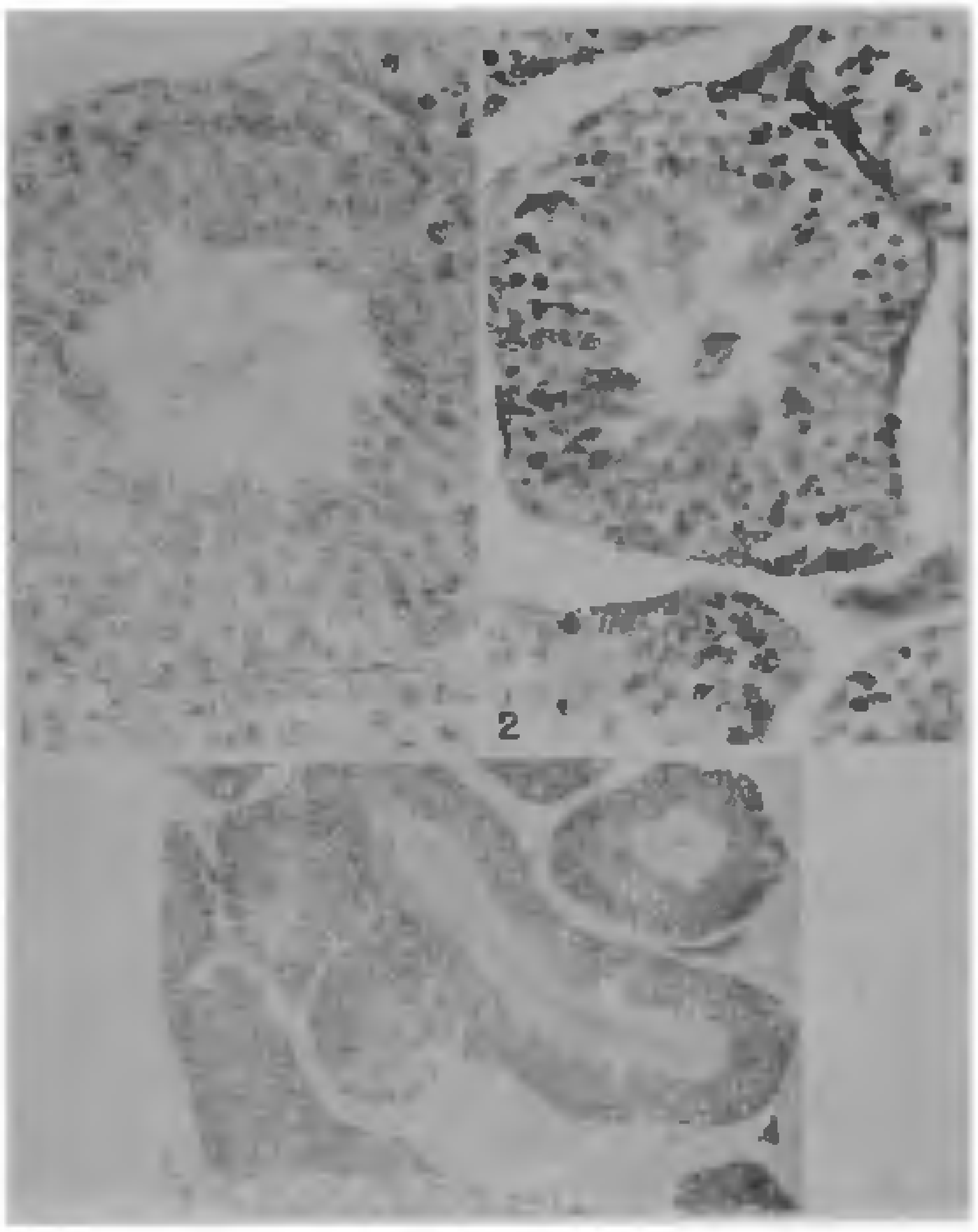
breeding season in all the species of bats studied (Figs. 1 and 2). The sperm heads lie radially



FIGS. 1–3. Figs. 1 and 2. Transverse sections of the seminiferous tubules of *Rousettus leschenaulti* (Megachiroptera-Pteropidae) and *Pipistrellus ceylonicus chrysothrix* (Microchiroptera-Vespertilionidae) respectively. Note the spiral orientation of the sperm tails in the centre of the seminiferous tubules. The heads of the sperms are located towards the periphery of the lumen, × 280. Fig. 3. Part of the testis of *Rousettus leschenaulti* showing one tubule cut longitudinally and several cut transversely. The sperm tails are all oriented in one direction in the centre of the longitudinally cut tubule, × 60.

towards the periphery of the lumina of the seminiferous tubules. There seems to be a strong current within the seminiferous tubules, and since the sperm tails are lighter than the heads, the tails are drawn first into the current. Hence, in sections in which the tubules are cut longitudinally the tails of the sperms are all oriented in one direction and lie in the centre of the tubule (Fig. 3). The orientation of the tails in a spiral manner indicates that the current has a rotary movement inside the tubules.

Two questions arise in this context : (*i*) where does the fluid in the seminiferous tubules come from, and, (*ii*) what propels this fluid through the tubules. It is suggested that the large quantity of cytoplasm which is sloughed off from the spermatids during spermateleosis, may form the major bulk of this fluid, and the cytoplasm of the degenerating sertoli cells may also contribute to this mass. The peristaltic movements caused by the alternate contraction and expansion of the wall of the seminiferous tubules (Roosen-Runge[3],) may be responsible for the propulsion of the fluid through the seminiferous tubules.

The mechanism responsible for bringing about a rotary movement of the fliud in the seminiferous tubules is not known. It is here pertinent to mention that the spermatozoa do not appear to have a specific orientation in stained sections of the epididymis (Gopalakrishna *et al.*[2]). Apparently, the rotary nature of the current is confined to the seminiferous tubules only.

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HOST-PATHOGEN EQUILIBRIUM BETWEEN RICE (*ORYZA SATIVA* L.) AND ITS PATHOGEN *PYRICULARIA ORYZAE* CAV.

THE first report of the occurrence of physiologic races in *Pyricularia oryzae* Cav. in India is by Padmanabhan[1]. Padmanabhan *et al.*[2], reported the occurrence of thirty-one races of the pathogen after studying the pathogenicity-patterns of one hundred and thirty-two isolates of *P. oryzae* obtained through isolation from blast specimens collected from different States of India. Occurrence of one more race of the pathogen was reported from Central Rice Research Institute[3]. Veeraraghavan and Premalatha Dath[4], could identify during 1972, the incidence of two races of the pathogen, *viz.*, IC 1 and IC 17 only[5]. The isolates included in that study were from disease specimens collected during 1971 and 1972. Isolates of *P. oryzae* which were collected during 1972 and 1973, revealed the presence of the race IC 17 in different parts of this country.

The present contribution reports the occurrence of physiologic races of *P. oryzae* which were prevalent during 1973 and 1974.

One hundred and ten isolates of the pathogen were obtained from blast specimens collected from Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Orissa, West Bengal, Tripura, Meghalaya, Assam, Manipur, Bihar, Madhya Pradesh, Uttar Pradesh, Himachal Pradesh, Punjab, Jammu and Kashmir, Rajasthan, Gujarat and Maharashtra. The international set of eight differentials[6], *viz.*, Raminad str.[3], Zenith, N.P. 125, Usen, Dular, Kanto-51, CI 8970 (S), and Caloro were utilised for the

TABLE I

Pathogenicity-pattern of the physiologic race IC 17 Pyricularia oryzae *Cav.*

Raminad str. 3	Zenith	N.P. 125	Usen	Dular	Kanto–51	CI 8970 (S)	Caloro
R	R	S	R	S	S	S	S

R = Resistant, S = Susceptible.

identification of physiologic races of the pathogen. The highly susceptible variety, Co. 13 was utilised as a check for detecting the success of inoculation and the identity of the physiologic race of the pathogen which may not produce any visible symptoms on the plants of the eight differentials[2]. The method of identification of the physiologic races of *P. oryzae* was the one described by Padmanabhan *et al.*[7]. The classification of Ling and Ou was adopted[5].

The data revealed that the one hundred and ten isolates of the pathogen belonged to the race IC 17[5]. The pathogenicity-pattern of this race is presented in Table I.

The physiologic race IC 17[5] was reported to be the most prevalent one in India since 1962[2,4]. The predominant prevalence, survival and succession of the race IC 17 over the other races indicates that this is a very stable race.

Miura and Ito[8], have reported the 'prosperity and decline of the race C in Japan'. Goto[9], stated "a certain delay is expected in the increase of adapted (or severe) races as compared with the increased cultivation of the varieties with new resistance; for instance, a delay lasted about ten years in the case of the variety, Futaba". The time lag between the introduction of a resistant variety and the break-down of resistance in the plants of the variety—obviously by the appearance of a new physiologic race of the pathogen—denotes a phase of host-pathogen equilibrium in the area. This phenomenon is evidenced by the monoracial succession brought about by the elimination of less stable biotypes of the pathogen and non-appearance of new races of the pathogen in the area. During the period under report no instance of break-down of resistance in a rice variety on a field scale has come to the notice of the authors, which has been known for its resistance in that locality.

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SALT TOLERANCE OF COTTON AND POTENTIAL USE OF SALINE WATER FOR IRRIGATION

A SATISFACTORY stand of cotton crop on saline soils and/or under saline water irrigation is a serious problem of common occurrence. Crop failures are due to the accumulation of salts which results in the reduction of seed germination and plantgrowth. Cotton, being recognised as the most salt tolerant of all the field crops, has not received the salinity study. The present work deals with the relative salt tolerance of some important cotton varieties and hybrid Varalaxmi at germinatios stage with different levels of salinity under field conditions.

The experiment was conducted in bottomless coal tar drums embedded in medium black clay soil (vertisol). Bhagya, Hampi, Laxmi and hybrid Varalaxmi were used in the present investigation. Saline water used for irrigation (conductivity values of 4, 8 and 12 mmhos/cm) was prepared by dissolving sodium chloride, sodium sulphate, sodium bicarbonate and calcium chloride on weight proportions (w/w) so as to obtain Na : Ca in the ratio of 4 : 1 and C_1 : SO_4 : HCO_3 in the ratio