sowing seeds in pots containing infected plant-debris in sterilized soil. In addition, sporangial suspension was dropped in the whorl of the seedlings. High moisture regime was maintained in the pots by giving frequent irrigations. The plants were grown under controlled conditions at $25 \pm 2^{\circ}$C. About 75% of the seedlings, thus developed, showed shorter leathery leaves. In some cases the leaves crumpled together and plants showed multiple tillering. On maturity there were, in general, green islands and light chlorotic striping on the older leaves. The tassel showed partial to complete proliferation wherein the normal floral parts were replaced by leafy structures. The affected plants had poor vigour and very few of them bore ears. The fungus was constantly associated with the diseased plant parts. However, the production of sporangia was very scanty.

The pathogen was identified on the basis of its mycelial character, as observed by staining with zinc chloriodide, sporangial morphology, sporangiophore and oosporial characters. Leaves from infected plants showing green islands were surface-sterilized and incubated in sterilized petriplates with moist cotton swab at $25 \pm 1^{\circ}$C for 10 days. The leaves showing white downy growth were studied microscopically for mycelial and sporangial characters. The infected leaf, stem and inflorescence tissues were stained with zinc chloriodide to observe the mycelium. The mycelium appeared purplish-blue in colour while the host tissue appeared light-coloured.

Pathogen: Mycelium is caenocytic and intercellular in nature. The sporangia are borne on sporangiophore emerging through the stomata. The sporangia are hyaline, lemon-shaped, operculate $60-95 \times 40-60\ \mu$ in size. Sporangiophores are hyaline (11.0–12.8 μ), hyphoid, simple and determinate in branching. The oospores were obtained late in the season and were confined to the vascular bundles of the infected leaf and leaf sheath. These are pale yellow in colour, varied from 45–70 μ in diameter. The sporangia released bicilliate zoospores through the apical tip.

Singh *et al*[3] reported the occurrence of a similar disease in Uttar Pradesh. But Payak[4] commented that there is a need of confirmation of the pathogen on the basis that the oospore of the pathogen, as described by Singh *et al*[3] resembled pollen grain of maize and the infection by *Sphacelotheca reiliana* (Künn) Clinton (causing head smut of maize) also results in similar phyllody of tassel. However, in the present study, these points have been given due consideration and thorough precautions were taken to ward off any possibilities of confusion with head smut. An absence of teliospores of *S.reiliana* in the proliferated tassel tissues, presence of sporangia, and appearance of the typical symptoms conclusively proved the disease to be crazy top downy mildew. If the objection raised by Payak about the pathogen reported by Singh *et al*.[3] is valid, the present report may be considered as the first report of occurrence of this disease in India.

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JAUNDICE IN CATTLE DUE TO FASCIOLA INFECTION

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HAEMOLYTIC jaundice is common in animals and may be caused due to several factors. However, obstructive jaundice is a rare occurrence in farm animals. Sometimes there are obstructions in the bile ducts by nematodes as well as by trematodes[1]. During 1982–83, some cattle showed symptoms of jaundice and it was initially presumed that these were suffering from haemolytic jaundice. After 2 weeks of the symptom, these failed to survive. Later, the stool samples of the infected animals were examined and found to contain the eggs of *Fasciola gigantica* Cobbold, 1885. The treatment of these cattle showing symptoms of jaundice together with *F. gigantica* was made with hexachloroethane and the results of the treatment are presented in this communication.

Enquiries revealed that symptoms appeared 15 days before they were brought for treatment. Clinical examination showed that their body temperature ranged from 101.0–101.8 °F, pulse rate from 50–60 per minute and respiration rate from 15–20 per minute. The conjunctiva of eye was ichteric. The skin of the dewlap, soft skin under the tail around the anus and

external genitalia were yellow in colour. There was loss of appetite, weakness, emaciation and debility. Constipation was marked. Microscopic examination of faeces by sedimentation method revealed the eggs of *Fasciola gigantica* (162–163 μm by 97–98 μm). The urine was dark yellow in colour and was highly positive for bile pigments by Gmelin test[2]. The animals were then treated with hexachloroethane with a single oral dose of 10–15 g and the treatment was repeated on the fourth day. Mifex (M & B) (300 ml) was injected subcutaneously for two consecutive days. Vibelan (Glaxo) injection (10 ml) was given intramuscularly for six days. Animals became gradually normal and passed normal urine and faeces. Fifteen days after the first treatment, urine and faeces were examined and it was found that the urine was free from bile pigment and faeces from the egg of *F. gigantica*. Olsen[3] demonstrated the value of hexachloroethane for liver-fluke infection in cattle. Fasciolosis with jaundice seems to be common in West Bengal and if not properly diagnosed and treated the result could be fatal.

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PROBABLE ANTIDIURETIC FUNCTION OF CERTAIN NEUROSECRETORY CELLS IN THE VENTRAL NERVE CORD IN *ORYCTES RHINOCEROS* (COLEOPTERA: SCARABAEIDAE)

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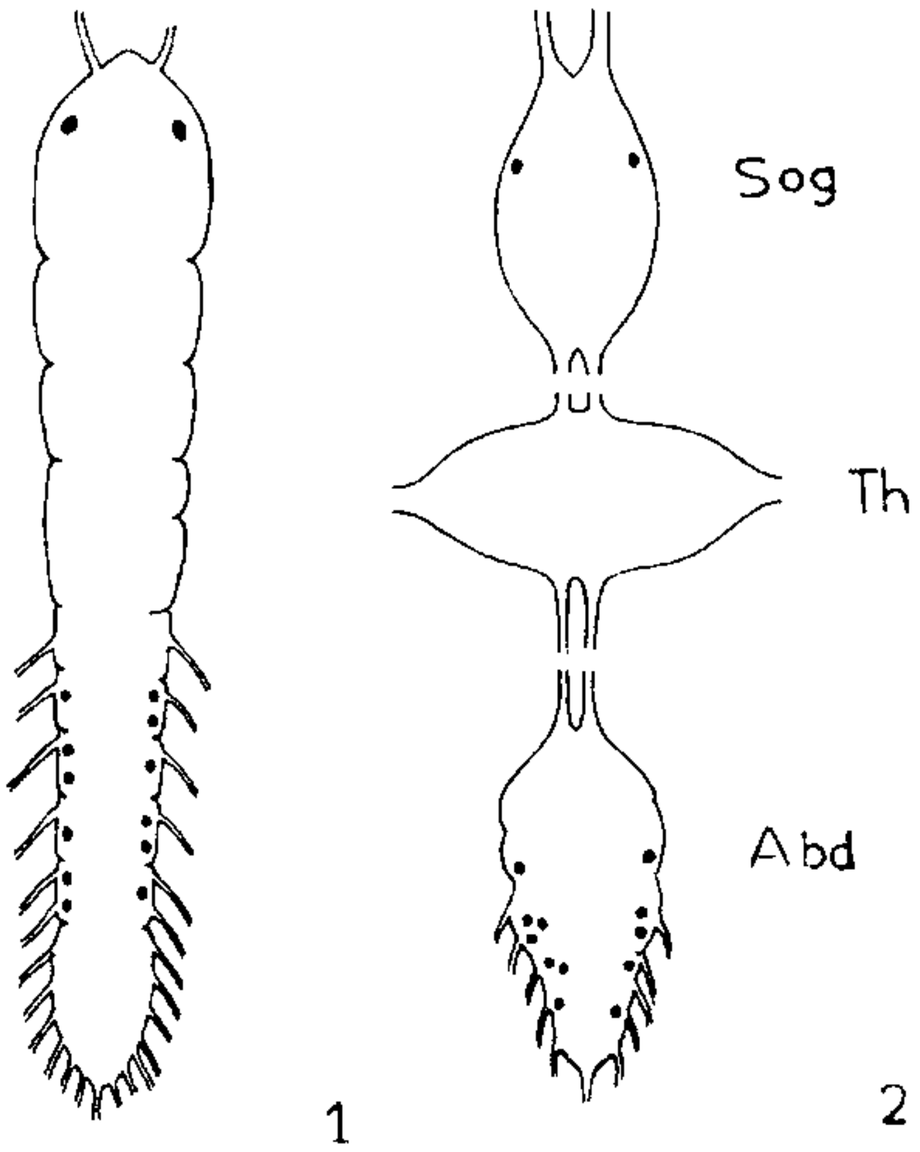
IT has been reported that most of the A-type neurosecretory cells in the brain (except one pair) and their axonal endings in the corpus cardiacum in the coconut beetle *Oryctes rhinoceros* (Coleoptera: Scarabaeidae) appear to contain a diuretic principle, as these cells are devoid of colloids under conditions of hydration, and charged with colloids under condition of dehydration[1]. The single pair of neurosecretory cells among the rest of the pars-intercerebralis A-cells however are supposed to have an antidiuretic function as these alone are fully loaded under conditions of water loading and indistinguishable under dehydration conditions. The present observations suggest that in addition to the single pair of the above neurosecretory cells in the Pars intercerebralis in *O. rhinoceros*, the A cells in the ventral ganglia also have an antidiuretic function.

Animals employed for the study and the methods were the same as in our earlier study for brain neurosecretory cells[1]. For hydration studies 3rd instar (last instar) larvae of *O. rhinoceros* were provided with cowdung with liberal sprinkling of water, or the larvae as well as the adults were given distilled water injections (1 cc/animal). For dehydration studies either the larvae were withheld from water or the larvae as well as the adults were injected saline (1 cc of 1% saline/animal). In either case the ventral nerve cord was dissected 3 days after treatment. Routine



Figures 1 and 2. 1. Composite ventral ganglion of 3rd instar larva of *Oryctes rhinoceros*. **2.** Ventral ganglia (SOG-Suboesophageal, Th-Thoracic, Abd-abdominal ganglionic fusions) of the adult, showing distribution of neurosecretory cells. These cells are antidiuretic.