determining this potentiality of the species for colonization as it implies the existence of different seed types within the same individual with diverse requirements for germination so that the species is able to colonize a wide range of environmental situations. The special ecological significance of size and shape of seeds has been well reviewed by Harper et al.[5] It is obvious from the account presented above that the type C seeds which are large and light, are superior as far as germinability is concerned. Due to their seed structure, they also ensure wide dispersal from the parent tree and prolonged storage in the soil due to their longer viability, so that the species may tide over unfavourable conditions. Types A and B seeds, though with poor germinability, ensure seed fall in the close vicinity of the parent tree on account of their heavier seeds. Because of short viability of these two types of seeds, germination and establishment have to be immediate, if favourable conditions exist. Thus the different seed types may be advantageous or disadvantageous to the species through space and time depending upon the micro-environmental conditions prevailing at the site where the seed fall may occur.

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NEUROSECRETORY SYSTEM OF THE BRAIN OF THE COTTON BUG *SERINETHA AUGUR* [FABR] [HETEROPTERA: COREIDAE]

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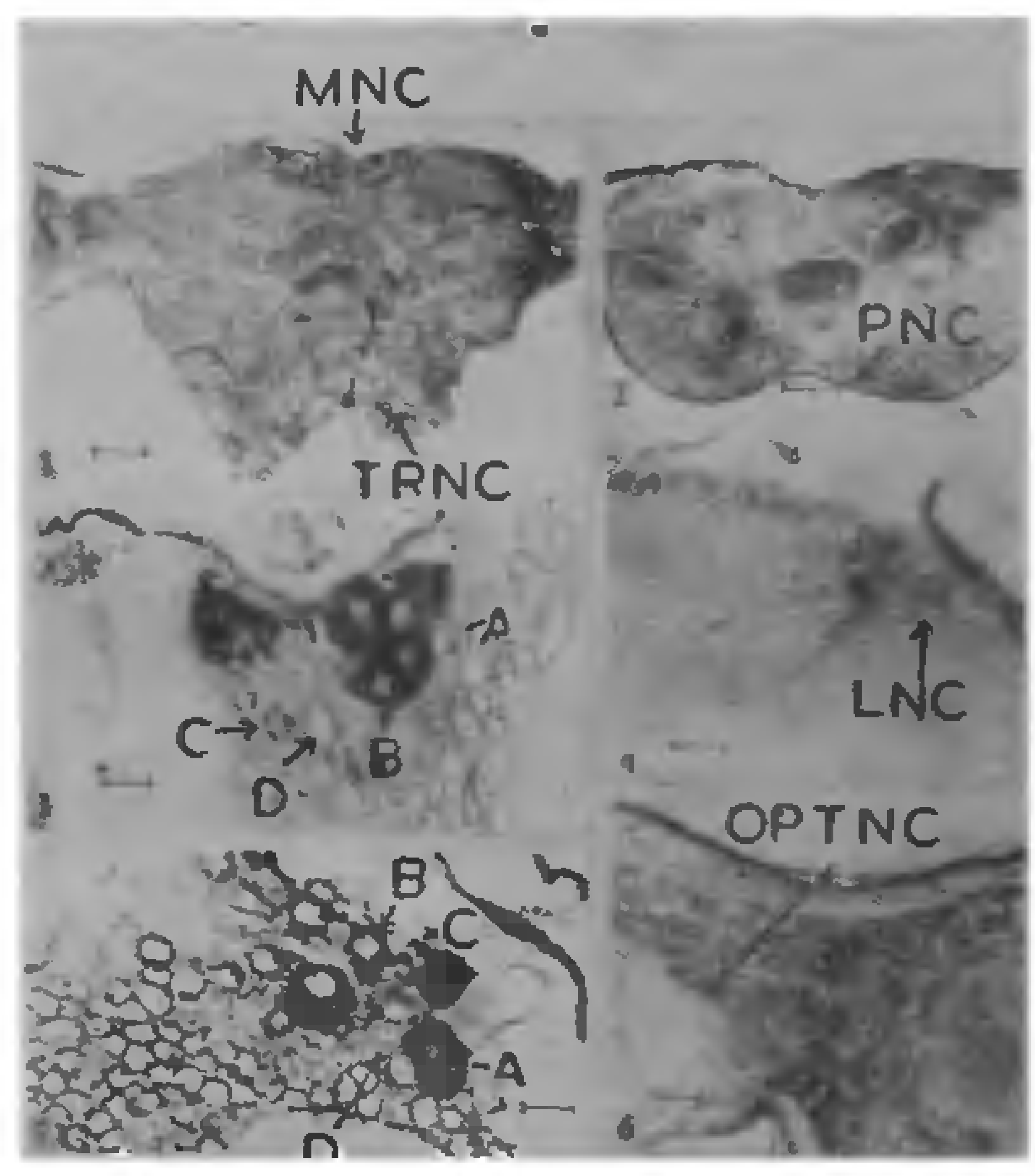
Studies on neurosecretory system of Gymnocerate heteropterans indicate the existence of great variability in the types of neuro-secretory cells (NSC) present in the brain of these insects[1]. This variation in the types of NSC of the brain has not been studied in detail at family level to understand its significance in systematics. The present paper gives a brief histomorphological account of the neurosecretory system of the adult female Coreid bug, *S. augur*.

The brains were dissected out under insect ringer solution and were fixed in Bouin's fluid. Paraffin sections were cut at $6\,\mu$–$8\,\mu$ thickness and were stained in Aldehyde fuchsin (AF)[2] and chrome alum haematoxylin phloxin (CHP)[3] to demonstrate the neurosecretory cell types.

Five distinct groups of neurosecretory cells are recognised in each lobe of the brain (Figs. 1, 2, 4 and 6). These neurosecretory cells of different groups are further classified into A, B, C and D types on the basis of their tinctorial affinities with AF and CHP stainings.

The median group of the pars intercerebralis consisting of 7–8 cells is characterised by the presence of four distinct cell types, namely, A, B, C and D (Figs. 3 and 5). A-cells stain dark purple with AF and blue black with CHP.

The cytoplasm of these cells contains large amounts of neurosecretion as evidenced by its strong reaction



Figs. 1–6. Fig. 1. Entire brain showing the distribution of neurosecretory cells in protocerebrum (MNC) and tritocerebrum (TRNC), CHP. Fig. 2. Entire brain showing the B-cells of the posterior group (PNC), AF; Fig. 3. A portion of the brain showing the A, B, C and D types of neurosecretory cells of the median group, AF. Fig. 4. A portion of the brain showing B-cells of the lateral group (LNC), AF. Fig. 5. A portion of the brain showing the A, B, C and D types of neurosecretory cells, CHP; Fig. 6. A portion of the brain showing the B-cells of the optic group (OPTNC), Bouin's, $6\,\mu$, AF; Figs. 1 and 2, Scale: $80\,\mu$. Figs. 3–6. Scale: $20\,\mu$.

with AF. B-cells (2–3) stain pale purple with AF and pale blue black with CHP and their cytoplasm contains moderate amounts of neurosecretion. C-cells (2–3) are smaller than the B cells and they stain green with AF and red with CHP. The cytoplasm of these cells contains less amount of stainable materials as evidenced by their feeble reaction with these stainings. D-cells (1–2) stain pale purple with AF and faint blue black with CHP and are larger than the A-cells. The cytoplasm of these cells reacts feebly with these stainings (Fig. 3).

The lateral neurosecretory cell group situated above the corpora pedunculata on the lateral side of the pars intercerebralis contains a few (1–2) B-type of neurosecretory cells (Fig. 4). The posterior group includes a few (1–2) B-type of cells situated at the posterior extremity on either side of the pars intercerebralis (Fig. 2). The optic group contains (2–3) B-type of cells (Fig. 6). The tritocerebral group consists of 1-2 tritocerebral neurosecretory cells of B-type. The cytoplasm of these B-cells of different groups contains less amount of stainable materials as evidenced by its feeble staining reactions with AF and CHP (Fig. 1).

The existence of variations in the distribution of neurosecretory cells in the brain has been reported for different Hemipteran insects. Thus, the Lygaeid milk weed bug, *Oncopeltus fasciatus*, contains a single group of neurosecretory cells with A, B, C and D types in the pars intercerebralis part of the protocerebrum[4]. The pyrrhocoreid plant bug, *Iphita limbata*, according to Nayar[5], possesses in its pars intercerebralis part of the protocerebrum two groups of neurosecretory cells, each consisting of sixteen cells. It is interesting to note that the neurosecretory cells have not been reported to occur in deuto and tritocerebral parts of the brain of these insects, although such cells have been identified in these parts of the brain of the present Coreid bug, *S. augur*. Thus, different families of the order Hemiptera seem to have NSC distributed in different ways in the brain as evidenced by their occurrence in Lygaeidae[4], Pyrrhocoridae[5] and Coreidae[6,7]. Similarly, studies on neurosecretory system of insects within the family Coreidae have shown certain variations in the distribution of NSC in the brain. The Coreid paddy bug, *Leptocorisa varicornis* has a single cluster of five AF positive median NSC in its protocerebral hemisphere[7]. Another Coreid bug, *Leptocorisa acuta*, has been reported to contain two groups of median NSC in this part of the brain[6]. The present Coreid bug, *S. augur*, on the other hand, has five groups of NSC in its brain. Further, the medial group of neurosecretory cells of these insects also exhibits difference in its composition of neurosecretory cell types as evidenced by the occurrence of two types of NSC (A and B) in *Leptocorisa varicornis*[7] and *L. acuta*[6] and four types (A, B, C and D) in *S. augur*. It may be inferred from these observations that the distribution of NSC groups as well as the occurrence of NSC types in the brain of these insects seem to be species specific.

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A NOTE ON HYDROCYANIC ACID CONTENT IN *ACACIA LEUCOPHLOEA* ROXB. WILLD

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Acacia leucopheloea Roxb. Willd commonly known as 'Reunja' is an ubiquitous species of genus *Acacia*. It abundantly grows in dry forest tracts of peninsula[1]. The bark of this plant is described to be medicinally useful[2]. Its green foliage is quite nutritious, and readily attracts grazing sheep and goats particularly during summer when green forage is scarce. In spite of its palatability the leaves and pods sometimes contain alarming quantities of hydrocyanic acid[3] which restricts its usefulness as forage for livestock. We report herein the monthly variation in the hydrocyanic acid content in different plantparts.

The HCN was estimated colorimetrically[4]. The values of HCN have been given in Table I on fresh weight basis. The bud formation in plants takes place during August and September followed by flowering and fruiting in October-November.

The concentration of hydrocyanic acid in leaves gradually increased from April touching to its maximum in May (242·6 ppm) and fell sharply from September (19·0 ppm) onwards. Buds and flower contained 562·1 ppm (August) and 478·8 ppm (October) respectively. The trend is indicative of shift of HCN bio-synthesis from leaves to the reproductive organs of the plant. Initially the hydrocyanic