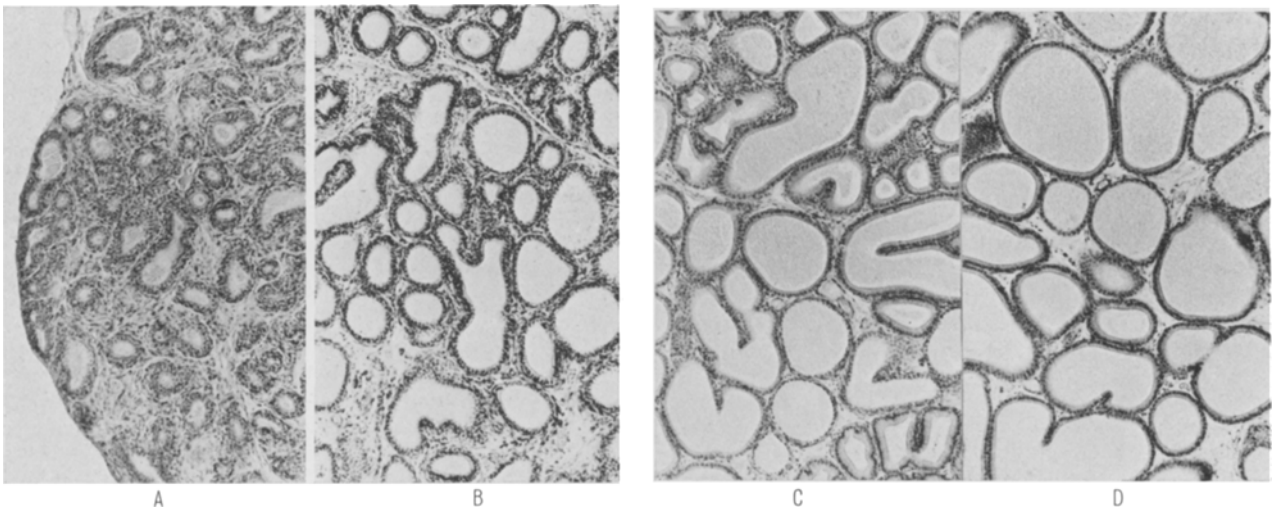

Fig. 3. (A) 'Control' ventral prostate, 8 days after hypophysectomy-orchidectomy: atrophy of glandular elements; predominance of interstitial tissues. × 140. (B) S.c. injections of 40 IU of prolactin/day, day 2–7 after hypophysectomy-orchidectomy: prevention of complete glandular atrophy. × 140. (C) S.c. injections of 5 mg progesterone/day, day 2–7 after hypophysectomy-orchidectomy: considerable secretory activity is maintained. × 140. (D) S.c. injections of 5 mg progesterone plus 40 IU of prolactin/day, day 2–7 after hypophysectomy-orchidectomy: synergistic action of the 2 hormones: distended alveoli by considerable secretory activity. × 140.

Discussion. There is no explanation as yet why there was such an unequivocal synergism between progesterone (presumably metabolized into androgens) and prolactin within the ventral prostate of juvenile hypophysectomized-orchidectomized rats. These results support earlier findings in detail which demonstrated this accessory sexual organ to be a receptor site for prolactin plus androgens in juvenile hypophysectomized-orchidectomized rats[3]. The mechanism by which this pituitary derivative furthered the androgen-dependent events in the ventral prostate remains obscure. In addition, there is no hypothesis available why prolactin might be involved in the physiology of this secretory structure. The question whether a possible synergistic action of prolactin and ACTH was mediated through the adrenals or exerted directly on the prostatic tissue, could not be resolved[8]. There was no definitive evidence that FSH augmented the action of testosterone on accessory organs[9]. Consequently, one should be encouraged to extend these studies in order to find out if this postulated pituitary end organ effect is specific for prolactin, and, if so, dose-dependent.

Zusammenfassung. Die normalerweise der Hypophysorchidektomie juveniler Ratten folgende Prostataatrophie wurde durch Behandlung mit Progesteron und Prolaktin verhindert. Direkte hypophysäre Einflüsse auf die Prostata werden diskutiert.

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Observations on the Neurosecretory Axons in the Aortal Wall of *Halys dentatus* F. (Heteroptera: Pentatomidae)

The morphological and functional patterns of different components of retrocerebral complex in gymnoceratan bugs have been studied by other workers[1–4]. There is a sharp difference of opinion among the authors regarding the storage and release of neurosecretory material (NSM), elaborated by the neurosecretory cells of the pars intercerebralis medialis. Some workers[2–4] have observed that (NSM) is stored in the corpora cardiaca, while others[3,4] noticed it in aortal wall also, which was interpreted as being on its way to the general blood circulation. However, in recent years, some workers have convincingly demonstrated that the aorta in the heteropteran bugs serves as a neurohaemal organ[1,5]. An attempt has been made in the present work to acertain the morphological pattern of the neurosecretory axons within the aortal wall, which has sofar received scanty attention so that its nature remains obscure.

The techniques employed by Dogra and Tandan[6] for fixing and staining the neuroendocrine glands were used

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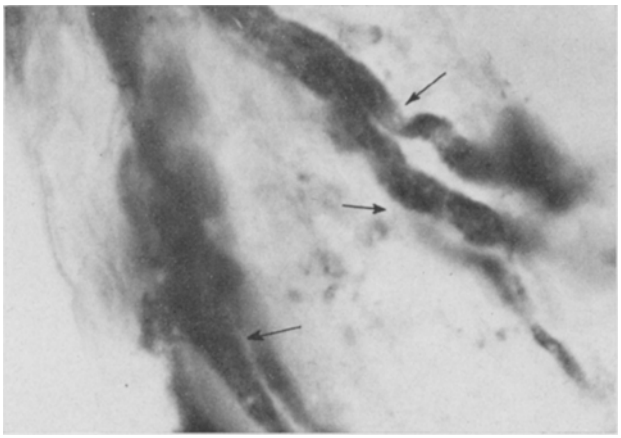
in this study. The pattern of the neurosecretory system of the bark bug *Halys dentatus* (Heteroptera: Pentatomidae) studied here resemble grossly other heteropterans. Some new features have been observed in the above species, so far as the storage and release organ of A-cell NSM, is concerned.

Although 10–12 nerve fibres only from A-cells of the brain innervate the aortal wall, a large amount of materials are generally visible in it. Whether such a large amount of material could be stored in the single-layered aortal wall[5] or its intercellular spaces[1], is a matter of further investigation, to establish any conclusion. The present observations show that the materials are neither stored in the aortal wall nor in its intercellular spaces, but remain confined to the axons (Figure), and the aortal wall simply serves as a framework for the axons. This observation is in congruence with the electron microscope study[7], which showed that the axonal endings of the neurosecretory axons are themselves the storage and release organs of the NSM in diverse groups of animals.

Further, the neurosecretory axons have been observed to divide and sub-divide at their distal ends (Figure), forming a dendrite-like pattern within the aortal wall. Earlier, JOHNSON[8] has also suggested that the neurosecretory axons in aphids divide and directly supply the tissues, they influence. However, the significance of the division of axons is not clear. It is probable that it helps to increase the storage capacity of the handful of neurones from A-cells and their area of release[9].



A portion of the aortal wall under oil immersion showing division and subdivisions of NSM-loaded axons (arrows). (PAVB, in situ.) × 800.

Zusammenfassung. Neurosekretorisches Material kann in der Wand der Aorta eines Insekts nachgewiesen werden. Das Material befindet sich dort ausschliesslich in den sich verzweigenden Axonen der NS-Zellen.

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Sex Chromatin in an Australian Marsupial *Perameles nasuta* Geoffroy, 1804

Sex chromatin has been reported in a wide variety of female mammals, including apes, lions, cattle, sheep, pigs and man[1]. Its significance was originally recognized by BARR and BERTRAM[2] in female cat neurons. In the Virginian opossum (*Didelphis marsupialis*) and a Brazilian opossum (*Philander opossum*) Barr bodies (sex chromatin masses) are present in interphase nuclei of both males and females but those of the female are larger than those of the male[3–5].

In the Australian long-nosed bandicoot *Perameles nasuta* male and female gonadal tissue has a diploid complement of 14 chromosomes. In the adult females one of the *X* chromosomes is eliminated from most somatic tissues. In male adults the *Y* chromosome is eliminated[6–7]. However adults of both sexes have 12 autosomes and both sex chromosomes in corneal epithelium[8].

Sex chromatin has been studied extensively in ocular tissues and is easily recognized in the epithelial cells of the cornea[9]. This study was undertaken to see if a nuclear sex difference occurred in corneal epithelial cells of long-nosed bandicoots.

Material and methods. 5 females and 6 males of the long-nosed bandicoot *Perameles nasuta* Geoffroy trapped in the Sydney district of New South Wales were killed with an overdose of ether. Both eyes were removed from all animals and fixed immediately in 95% ethanol. Slides of corneal epithelial cells were prepared by a modification of the technique of FREGDA[10]. 12–24 preparations were examined from each animal. Preparations were made permanent according to CONGER and FAIRCHILD[11].

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