hoppers, when predatory beetle and rice hoppers complex exist in the field.

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NEW RECORD OF *XYLOCOPA VALGA* GERSTACKER (HYMENOPTERA: ANTHOPHORIDAE) FROM INDIA

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THE species of *Xylocopa* are acknowledged as pollinators of several crops[1–7]. The genus is characterized by large, usually black insects with long tongues and dark wings. They nest in thatched houses or hollows of bamboos used to construct hut roofs on the countryside. They have powerful jaws and drill holes in forest timber[8–10], to make provision for their nests. More than 19 species of *Xylocopa* have been recorded from Indian sub-continent including Burma and Ceylon[11]. In the present study, a survey of various bee pollinators of fruits and agricultural crops was conducted for two years (1986–87) from March to December. In this survey, a very efficient pollinator species of *Xylocopa* was collected, which has been identified as *Xylocopa valga* Gerstacker through the courtesy of Dr K. M. Harris, Director, Commonwealth Institute of Entomology, London.

The emergence of *X. valga* coincides with the blooming of almond during early March, when the inclement weather limits the field activities of pollinating insects. *X. valga* has been found working during unfavourable weather conditions. It works at a critical air temperature of 6–7°C and on cloudy/overcast days. Field activity continues throughout the day with maximum population between 9 and 11 h. *X. valga*, on an average visited more almond flowers per min (22.40) compared with honeybee *Apis cerana indica* F. (7.5). It remains active from March to mid November. Perusal of the literature reveals that *X. valga* has not been recorded from India so far. Evidently, this report constitutes the first record of *X. valga* from India. Further studies on its pollination potential, bioecology and management could be of great applied value in temperate zones of India and elsewhere where very low temperature coupled with low light intensities and inclement weather are anticipated, when fruit crops like almond, apple, peach, plum, cherry and pears are in bloom.

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THE CORPUS LUTEUM OF THE BAT, *HIPPOSIDEROS LANKADIVA* (KELAART)

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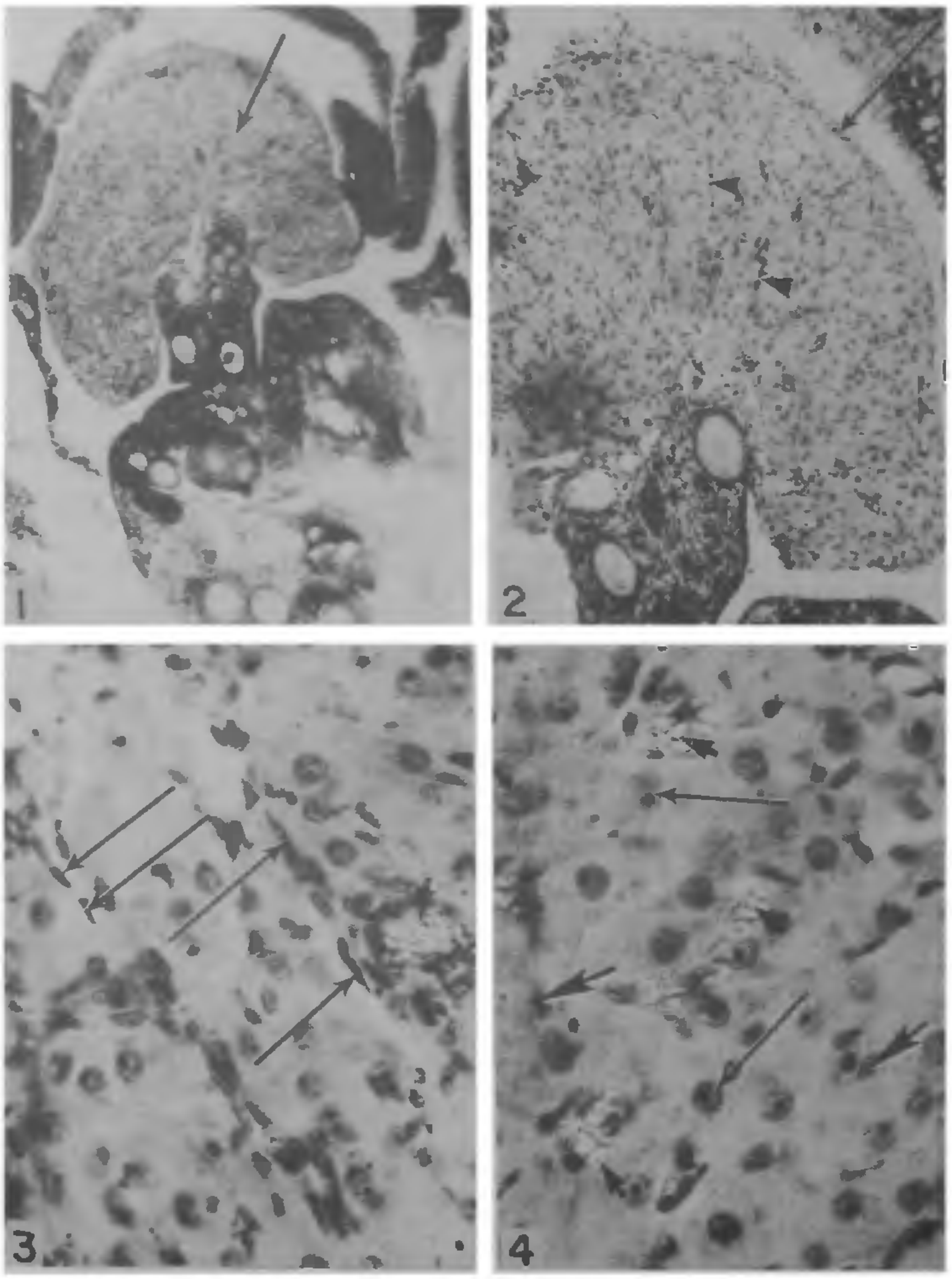
IN most bats the corpus luteum develops within the confines of the ovary[1–5]. However, in rhinoloph-

oid[6-9] and rhinopomatid[10,11] bats so far studied, the corpus luteum projects out of the ovary. In *Hipposideros lankadiva* (Hipposideridae) by the time embryo becomes implanted, the corpus luteum attains its maximum development and occurs as a bulb nearly as large as the rest of the ovary and is attached to it by a short stalk (figure 1). Numerous strands of fusiform cells with darkly staining spindle-



Figures 1–4. **1.** Fully developed corpus luteum (arrow) attached to the ovary by a stalk (×40); **2.** Part of the corpus luteum to show the peripheral layer of small cells (arrow) and a few strands (arrowhead) (×80); **3.** Part of the corpus luteum. Note the strands formed by fusiform cells (long arrows) and blood capillaries (short arrow) adjecent to a strand (×300); and **4.** Part of the corpus luteum to show two types of cells (long and short shaded arrows) and a few blood capillaries (short black arrows) (×300).

shaped nuclei radiate from the stalk and the base of the corpus luteum (figures 2 and 3) to the periphery where they are continuous with a layer of small flat cells covering the surface of the corpus luteum. These are evidently the cells of the theca folliculi which invade the corpus luteum as the granulosa layer becomes extrovert and invest the corpus luteum. Blood capillaries are often present along the strands and these give rise to numerous finer branches which irrigate the corpus luteum. Apart from these cells two major cell types, herein referred to as cell type I and II, could be identified in the corpus luteum (figure 4). Cells of type I are large, possess highly eosinophilic cytoplasm and contain spherical nuclei, each with a distinct dark round centrally located nucleolus surrounded by a halo of clear area. Finely granular chromatin material occur in the peripheral regions of the nucleus. The cells of type II are smaller and contain irregularly-shaped nuclei in which coarse chromatin material occurs evenly distributed throughout the nucleus. A distinct nucleolus is not evident in these cells. The cytoplasm is less eosinophilic than in cell type I.

The corpus luteum undergoes rapid regression after the establishment of the chorio-vitelline placenta and disappears altogether after the late limb-bud stage of development of the foetus when the allantoic placenta is well-developed.

All studies carried out so far indicate that the corpus luteum becomes extrovert in all the bats belonging to the families Rhinolophidae, Hipposideridae and Megadermatidae, all included in the superfamily Rhinolophoidea[12,13]. Rhinopomatidae is the only other chiropteran family in which the corpus luteum is extrovert[10,11]. Recent biochemical[14] and embryological[15] studies reveal that *Rhinopoma* shares many characters with rhinolophoids. The development of an extrovert corpus luteum is another character common to rhinolophoid bats and *Rhinopoma*.

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