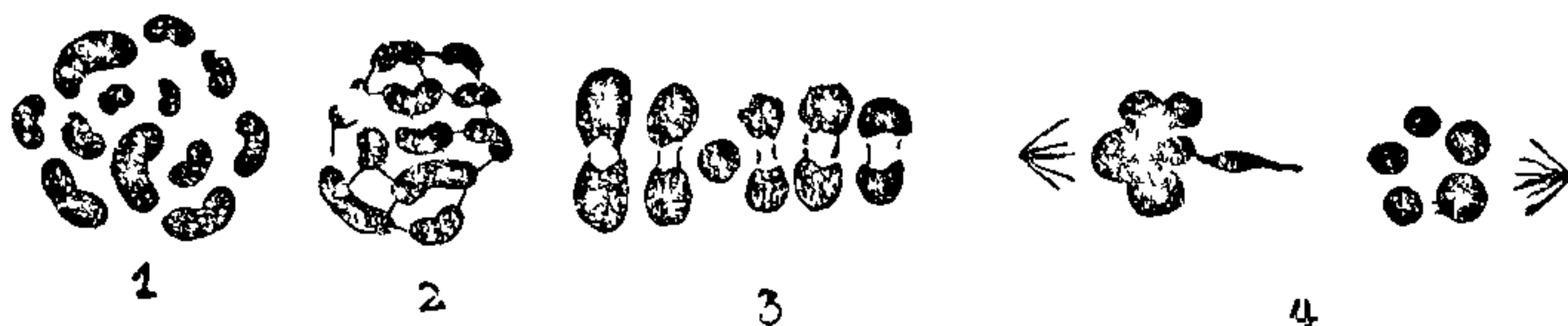


Testes from adult males were fixed in acetic alcohol and sanfelice. Squashed and sectioned tissues were stained with iron-alum haematoxylin and feulgen. Oogonial chromosomes were studied from temporary acetocarmine preparations.

The oogonial metaphase complement (Fig. 1) consists of 12 bean-shaped chromosomes with diffuse centromere. Members of the complement take up stain in equal intensity. Therefore the identification of the sex chromosome becomes obscure. There is a pair of large chromosomes while the rest are gradually seriated. The spermatogonial metaphase complement (Fig. 2) has 11 chromosomes similar to oogonial chromosomes in shape, size and behaviour. A careful homology reveals that the female has 2 X chromosomes and the male only one. These are the smallest members of the complement.



FIGS. 1-4. *Z. punctatus*. (Camera Lucida drawings, \times ca 1,500). Fig. 1. Oogonial metaphase. Fig. 2. Spermatogonial metaphase. Fig. 3. Spermatocyte metaphase I. Fig. 4. Anaphase I.

The beginning of the primary spermatocyte prophase is characterised by a contraction phase where a somewhat prominent, deeply stained chromatin mass is present. The contraction stage is followed by a diffuse stage where the large heteropycnotic mass appears to be more prominent. The number of elements present in the prophase stage of the primary spermatocyte division could be followed from the diplotene stage. There are six elements of which 5 are autosomal bivalents and the remaining one—the univalent X chromosome. Each bivalent has one chiasma, terminal or interstitial. At diakinesis much contraction takes place. Terminalization of the chiasmata is complete by the time metaphase I is reached. 1st division metaphase is characterized by dumbbell-shaped bivalents and the univalent X chromosome (Fig. 3). Bivalents at metaphase I show co-orientation. The 1st division anaphase is reductional and the X chromosome moves to one of the daughter nuclei (Fig. 4). There are two types of second division metaphases depending on the presence or absence of the X chromosome. The second division anaphases are equational. The relative percentage volumes of the haploid set of spermatocyte metaphase I chromosomes are—autosome No. 1 (A_1) 23.84, A_2

18.46, A_3 16.92, A_4 16.15, A_5 13.46 and that of X 11.15.

Cytological information of a species is being utilized, now to determine its systematic position. Karyological studies on Jassids have been done by various workers⁴⁻⁷ aiming at (1) cyto-taxonomy and (2) trend of evolution in the group. The subfamily Jassinae is divided into 9 divisions. The genus *Zizyphoides* has been put in Mukariaria. The diploid number ($2n = 11$ male, 12 female) encountered in *Z. punctatus* sp. nov. is low compared to other divisions. The behaviour of spermatocyte chromosomes, however, has close similarity with the related divisions. The presence of the orthodox sex chromosome mechanism (XX:XO), the diffused nature of centromere, typical orientation of chromosomes at mitotic metaphase and spermatocyte metaphase I and the prereducational meiosis in males hold the identification cytologically valid.

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NEW RECORDS OF PENTATOMOIDEA (HEMIPTERA) FROM INDIA

THE author had an opportunity to study a collection of unidentified Pentatomoidea from India in the National Pusa Collection, Division of Entomology, I.A.R.I., New Delhi. Besides this the author himself had collected many pentatomid bugs from Himachal Pradesh and Delhi, and examined them

critically. As a result of these studies nine species are listed below as new records from India.

Family : PLATASPIDAE

Genus : *Coptosoma* Laporte, 1832

1. *Coptosoma fletcheri* Distant, 1918, *Fauna British India Rhynch.*, 7, 114-15.

Specimens examined : 2 females, Shillong, September-October, 1918, Fletcher Coll.; 1 male, 1 female, Simla, July, 1918, Fletcher Coll.

Distribution : Burma, India.

2. *Coptosoma haragamensis* Distant, 1918, *Fauna British India Rhynch.*, 7, 112-13.

Specimens examined : 2 males, 2 females, Parli, S. Malabar, June 3-20, 1915, C.N. Coll.

Distribution : Ceylon, India.

Family : PENTATOMIDAE

Subfamily : SCUTELLERINAE

Tribe : Scutellerini

Genus : *Poecilocoris* Dallas, 1848

3. *Poecilocoris lewisi* Distant, 1883, *Trans. Ent. Soc. Lond.*, 1883 : 419.

Specimens examined : 1 female, Ranikhet, U.P., 6,000 ft., June 20, 1939, H. S. Pruthi Coll.; 6 females, on apple fruit, Jolikote, U.P., June 5-6, 1915, H.H.P. Coll.

Distribution : India, Japan.

Subfamily : PENTATOMINAE

Tribe : Halyini

Genus : *Apodiphus* Spinola, 1837

4. *Apodiphus amygdali* (Germar, 1817), *Reise Dalmat.*, p. 284 (*Halys*).

Specimens examined : 1 female, on hedge, Simla (H.P.), June 16, 1966, A. D. Pawar Coll.; 1 male, on apple, Kashmir, 5,200 ft., Sirinagar, July 28, 1923, Fletcher Coll.; 1 male, Simla, May, 1918, Fletcher Coll.; 1 female, on apple trunk, Gulmarg, Kashmir, 8,500 ft., September, 1917, Dutt Coll.

Distribution : Asia Minor, Dalmatia, Greece, India, Italy, Persia, S. Russia, Syria, Turkey, Turkomania.

5. *Apodiphus integriceps* Horvath, 1888, *Rev. Ent.*, 7, 172.

Specimens examined : 1 male, 1 female, on almond, Simla (H.P.), 7,000 ft., June 4, 1966, A. D. Pawar Coll.; 1 female, Kashmir, 5,200 ft., Sirinagar, June-July 1923, Dutt Coll.; 1 male, on bean, Chardeh, Afghanistan, July 4, 1939, T. Ahmad.

Distribution : Afghanistan (new record), India, Turkestan.

Remarks : Distant (1902), 1908 and 1918) did not list this species from India though Kirkaldy (1909) gave the habitat as "Kashmir".

Tribe : Mecedini

Genus : *Mecidea* Dallas, 1851

6. *Meciden major* Sailer, 1952, *Proc. U.S. nat. Mus.*, (3309) 102, 486.

Specimens examined : 1 female, at light, Delhi, June 7, 1939; 1 female, at light, Bilaspur (H.P.), June 16, 1968, A. D. Pawar Coll.

Distribution : India, U.S.A.

Tribe : Aeschrocorini

Genus : *Aeschrocoris* Bergroth, 1887

7. *Aeschrocoris ceylonicus* Distant, 1899, *Ann. Mag. Nat. Hist.*, 4 (7), 439.

Specimen examined : 1 female, Khasi Hills, Shillong, August-October, 1919, Fletcher Coll.

Distribution : Ceylon, India.

Tribe : Nezarini

Genus : *Acrosternum* Fieber, 1861

8. *Acrosternum millierei* (Mulsant and Rey, 1867), *Ann. Soc. Linn. de Lyon*, 14 (2), 213 (*Nezara*).

Specimen examined : 1 female, Gulmarg, Kashmir, 8,500 ft., September, 1917, Dutt Coll.

Distribution : South of France, India.

Family : ACANTHOSOMATIDAE

Genus : *Proctophantasta* Breddin, 1902

9. *Proctophantasta forficuloides* Distant, 1902, *Ann. Soc. Ent. Belg.*, 50, 409.

Specimen examined : 1 male, Gulmarg, 8,500 ft., September 1917, Dutt Coll.

Distribution : Ceylon, India.

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