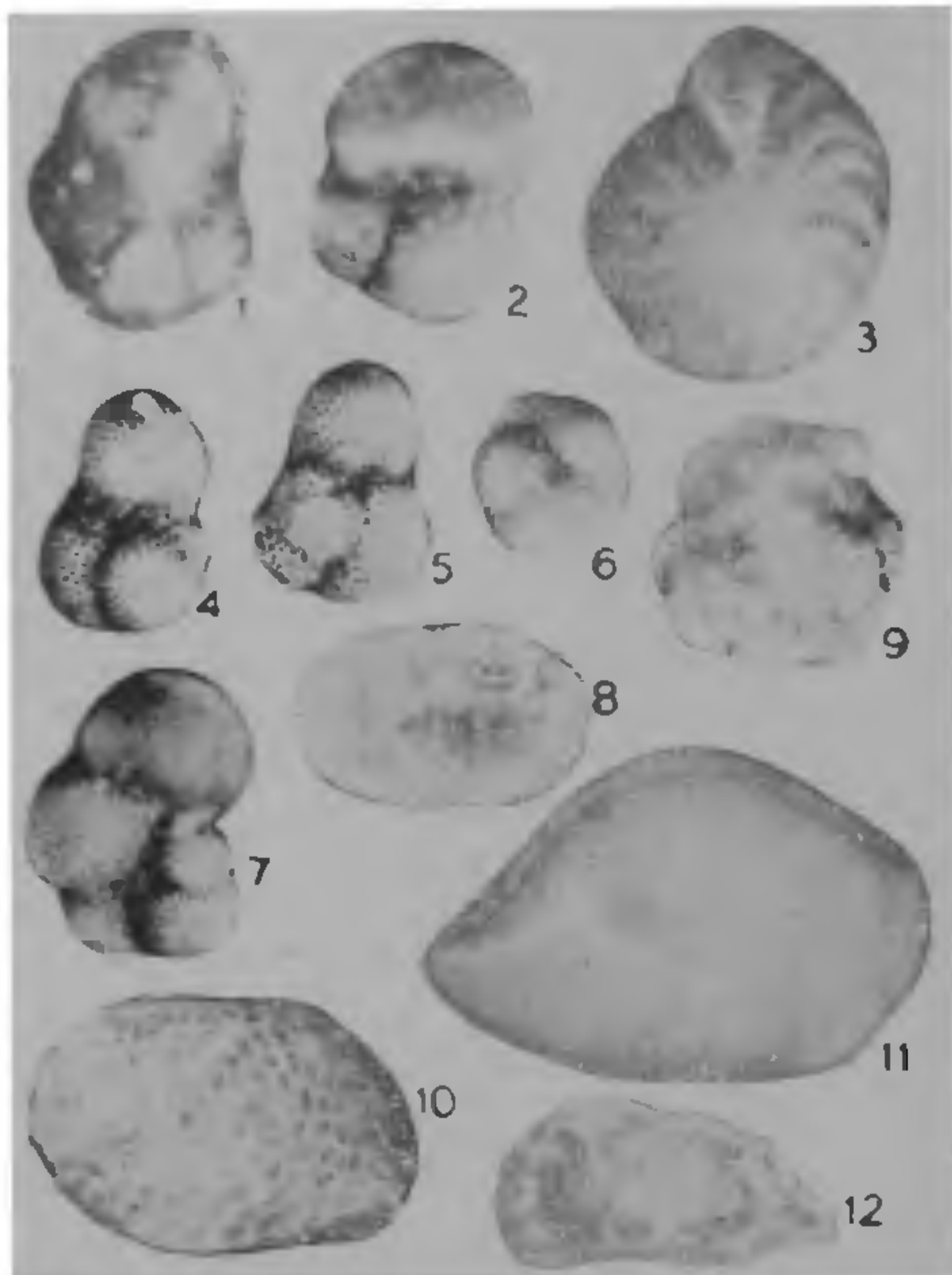


foraminifera and bryozoa. It also contains a few nannofossils. The species of ostracoda identified in the marl are *Bairdia antillea* Bold, *Bairdia* spp., *Pontocypris* sp., *Krithe* spp., *Paracytheridea longicaudata* (Brady), *Hemicythere* sp., *Caudites* sp., *Leguminocythereis* spp., *Loxococoncha* sp., *Loxococoncha honoluluensis*



FIGS. 1-12. Fig. 1. *Globorotalia* (*G*) *tumida tumida* (Brady), umbilical view, $\times 32$. Fig. 2. *Globigerinoides rubra* (d'Orbigny), umbilical view, showing umbilical primary aperture, $\times 44$. Fig. 3. *Elphidium* sp., side view, $\times 40$. Fig. 4. *Globigerinoides* sp., umbilical view. Fig. 5. Spiral view, $\times 44$. Fig. 6. *Pulleniatina* sp., umbilical view, $\times 24$. Fig. 7. *Hastigerina* sp., side view, $\times 31$. Fig. 8. *Cytherelloidea* sp., left view, of closed carapace, $\times 44$. Fig. 9. *Combatoporetta* sp., side view, $\times 35$. Fig. 10. *Loxococoncha* sp., left view of closed carapace, $\times 41$. Fig. 12. *Caudites* sp., left view of closed carapace, $\times 49$.

(Brady), *Quadracythere* sp., *Hermanites* sp., *Costa boldi* n.sp., *Xestoleberis* spp., *Cytherella* sp., and *Cytherelloidea* sp. The foraminiferal assemblage is represented by *Globorotalia* (*Globorotalia*) *tumida tumida* (Brady), *Globorotalia* spp., *Pseudorotalia gaimardii* (d'Orbigny), *Globigerinoides rubra* (d'Orbigny), *Globigerinoides triloba im-matura* Le Rey, *Globigerinoides* spp., *Orbulina universa* d'Orbigny, *Bolivinita* sp., *Logena* spp., *Nonion* spp., *Florilus* sp., *Eponides* spp., *Quinqueloculina* sp., *Elphidium*

spp., *Pulleniatina* spp., *Bolivina* sp., *Uvigerina* spp., *Siphogenerinoides* spp., *Rectobolivina* sp., *Hastigerina* sp., *Textularia* spp., and *Cympaloporetta* spp. The present foraminiferal assemblage suggests an early Pliocene age to the marl.

Detailed work on ostracoda foraminifera, bryozoa and nannofossils is in progress and the results will be published later on.

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Department of Geology,
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Lucknow, December 4, 1971.

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ON THE OCCURRENCE OF *HYALINELLA MINUTA* OKA (ECTOPROCTA : PHYLACTOLAEMATA) IN INDIAN WATERS

DURING the course of a detailed study of the freshwater Bryozoan fauna of Madhya Pradesh, the authors came across the species *Hyalinella minuta* Oka. This is the first record of the species from Indian waters and is an addition to the earlier records (Annandale, 1911; Rao and Kulshrestha, Rao and Ghosh 1962-64) of freshwater Bryozoan fauna from this region.

H. minuta was recorded from Nageshwar Ghat (St. No. 97) at Badawaha in the Narmada river system. The material was observed as an encrustation on small pieces of submerged sticks. The colony was repent with no erect branches and is quite dense in growth. It is compact with a continuous ectocyst of the older and newly formed zoecia. The latter are small with a swollen soft and colourless ectocyst. The zoecial tip is slightly upright with an obscure emargination and keel. The septa are not visible and the floatoblasts resemble those of *Hyalinella punctata*. No sessoblasts could be recorded. The polyp is comparatively short and stumpy with a prominent funicular tissue, extending from its posterior end. The tentacular number is variable from 25 to 38. The older polyps have a larger number of tentacles than

the newly formed. Slight flexibility can be observed in the wrinkled zoecial tube too.

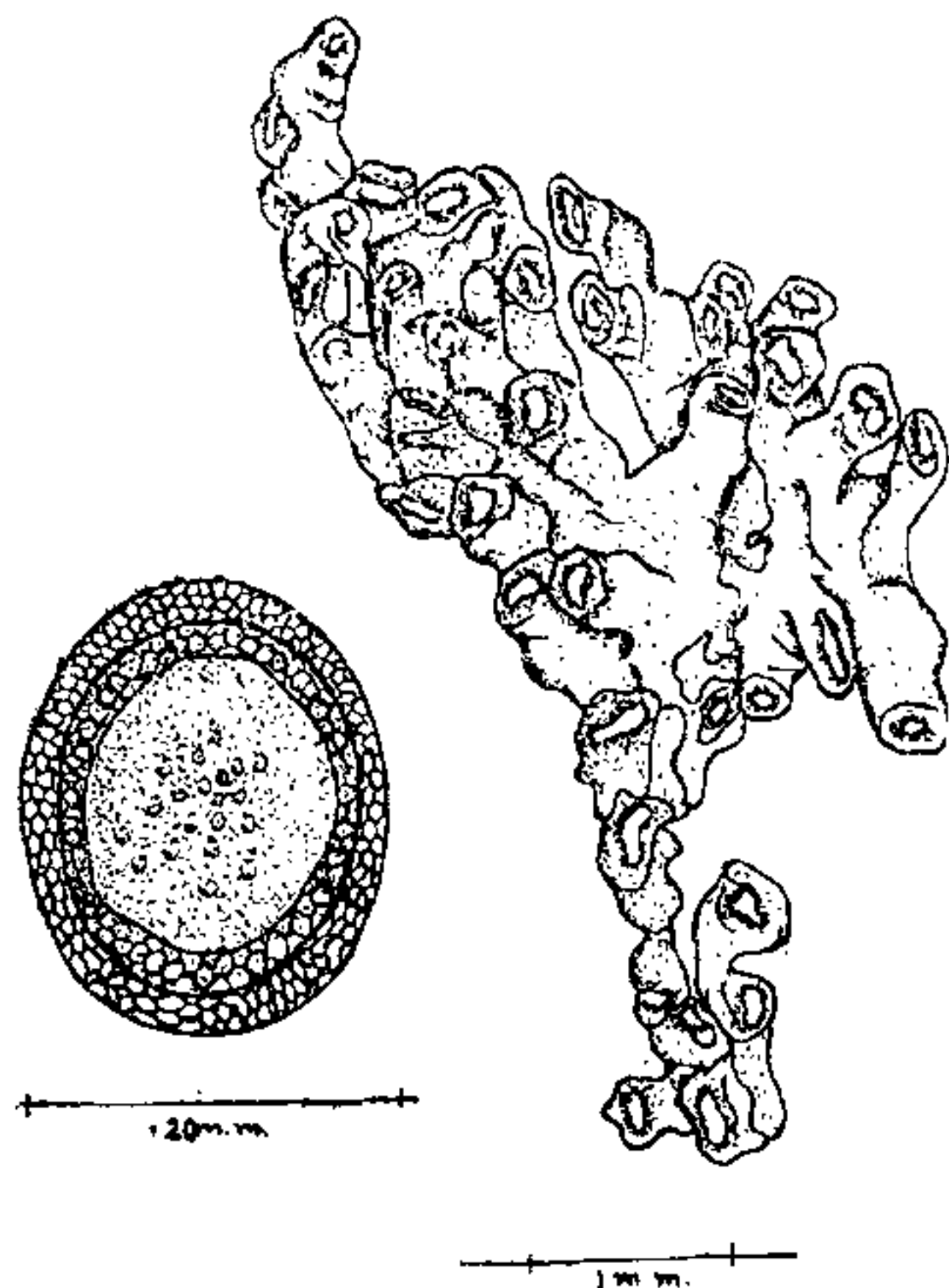


FIG. 1. a, Entire colony of *H. minuta*; b, Floatoblast.

Kraepelin (1887) described the species as *H. punctata* var. *densa* and figured it. Vortsman described *H. punctata densa*, but Toriumi (1955) observed it to be different, from what Kraepelin reported. Oka (1907) described the species from Japanese waters and Toriumi (1955) recorded and established the species from the same region. The present material resembles the latter very closely and the floatoblasts of both are identical.

The authors are highly indebted to Dr. Toriumi and Dr. Wiebach for furnishing important references and comments. Thanks are also due to Dr. Raviprakash, Principal, Holkar Science College, Indore, for constant encouragement and facilities provided.

Zoological Laboratories,
University of Indore,
Indore, M.P.,
December 22, 1971.

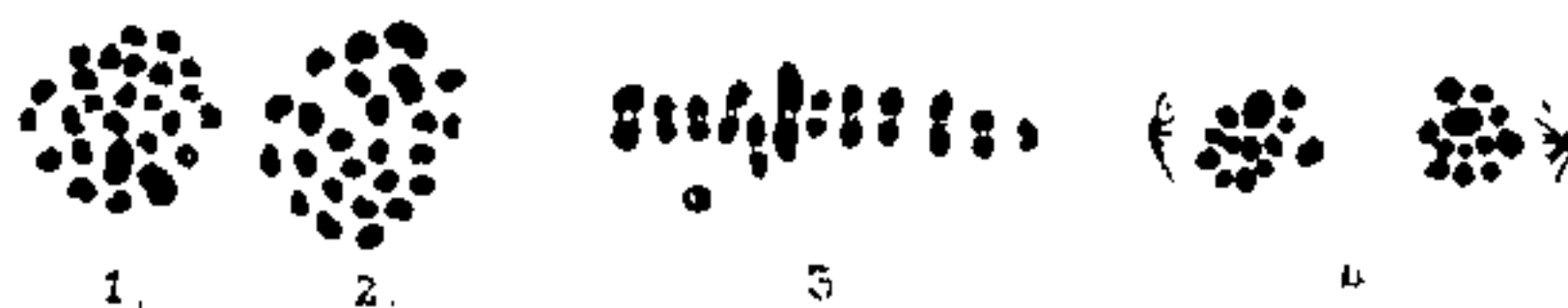
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THE CHROMOSOMES OF A PSYLLID (STERNORRHYNCHA, HOMOPTERA)

INTERESTING cytological informations exist in Aphidina, Coccina and Aleurodina of the Sternorrhyncha (Homoptera) but its fourth phalanx Psyllina is meagerly known cytologically by six species of a single genus *Psylla*. This study on *Megatrioza hirsuta* (Cr.), that deals with the number and behaviour of its gonial and spermatocyte chromosomes including the metrical data, adds one more to Phyllina. *M. hirsuta* forms leaf-galls on *Terminalia arjuna*.

The oogonial metaphase complement of 26 (Fig. 1) and the spermatogonial metaphase complement of 25 chromosomes (Fig. 2) have a pair of conspicuously large autosomes but the rest are small. There are two X chromosomes in the female and a single in the male which could not be identified either by morphology or stainability. The very early primary spermatocyte nucleus contains a positively heteropycnotic sex chromatin mass that forms the base of the "bouquet" type orientation of autosomes. Twelve autosomal bivalents, each with a single chiasma, and a single X chromosome could be followed from the diplotene stage. At metaphase I (Fig. 3) the bivalents are dumb-bell-shaped and the univalent X chromosome is spherical in appearance. The first division anaphase (Fig. 4) being reductional, one half



FIGS. 1-4. (Camera lucida drawings, $\times ca$ 1,500.) Fig. 1. Oogonial metaphase. Fig. 2. Spermatogonial metaphase. Fig. 3. Spermatocyte metaphase I. Fig. 4. Anaphase I.

receives 12 autosomes plus the X and the other 12 autosomes only. The second division is equational. The relative percentage volumes, determined according to the method described elsewhere³, in autosome Nos. 1-12 are 18.42, 10.00, 8.94, 7.36, 7.36, 6.84, 6.84, 6.31, 5.78, 5.26, 4.73 and 3.68 respectively and in X, 8.42. According to the metrical data the complement contains one large (No. 1) and the remaining ones medium to small sized chromosomes.

The cytological features of *M. hirsuta* of Psyllina, e.g., diploid number of 25 chromosomes, bouquet arrangement, bivalent orientation, prereduction, XO : XX type of sex determination, etc., are very much similar to