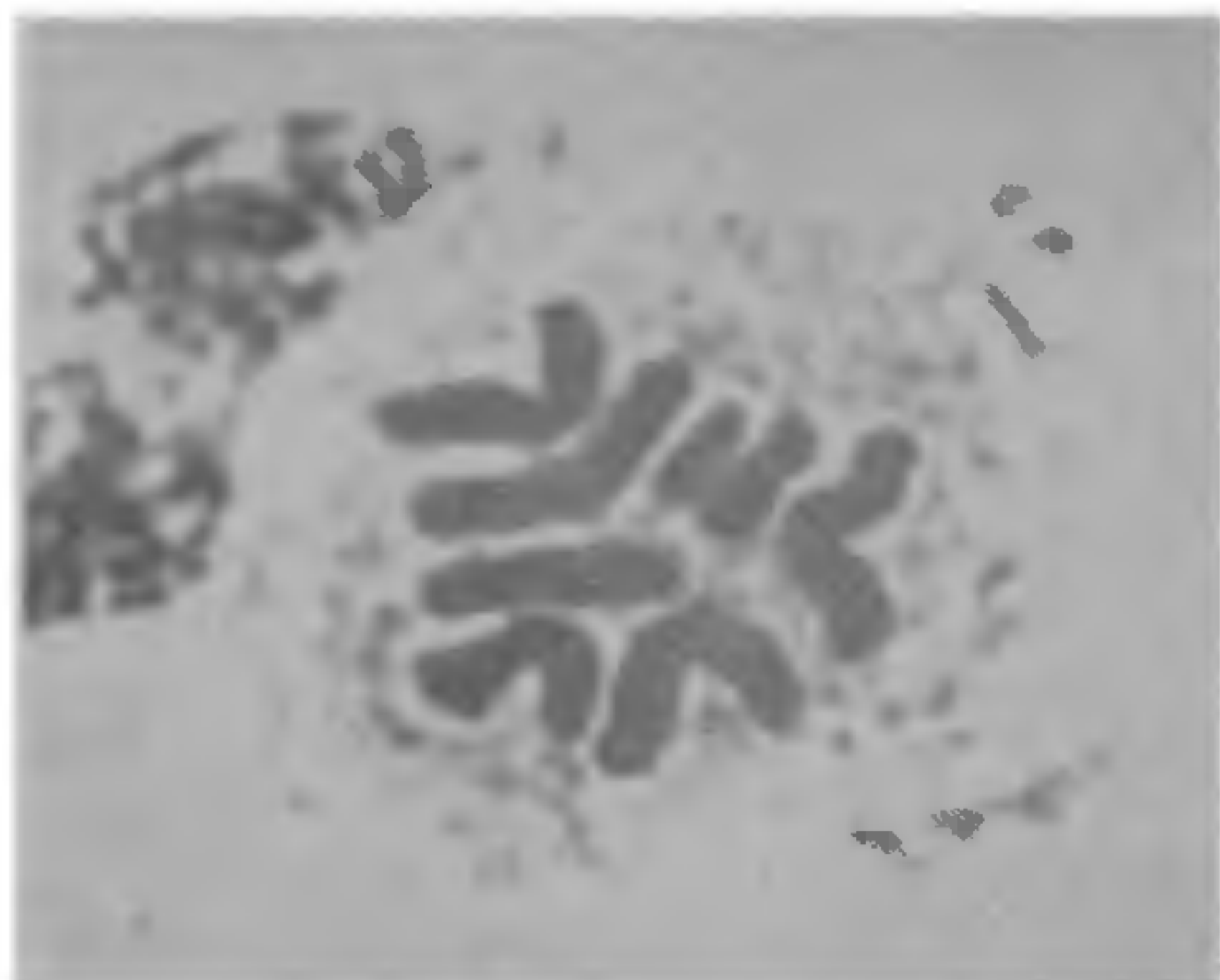
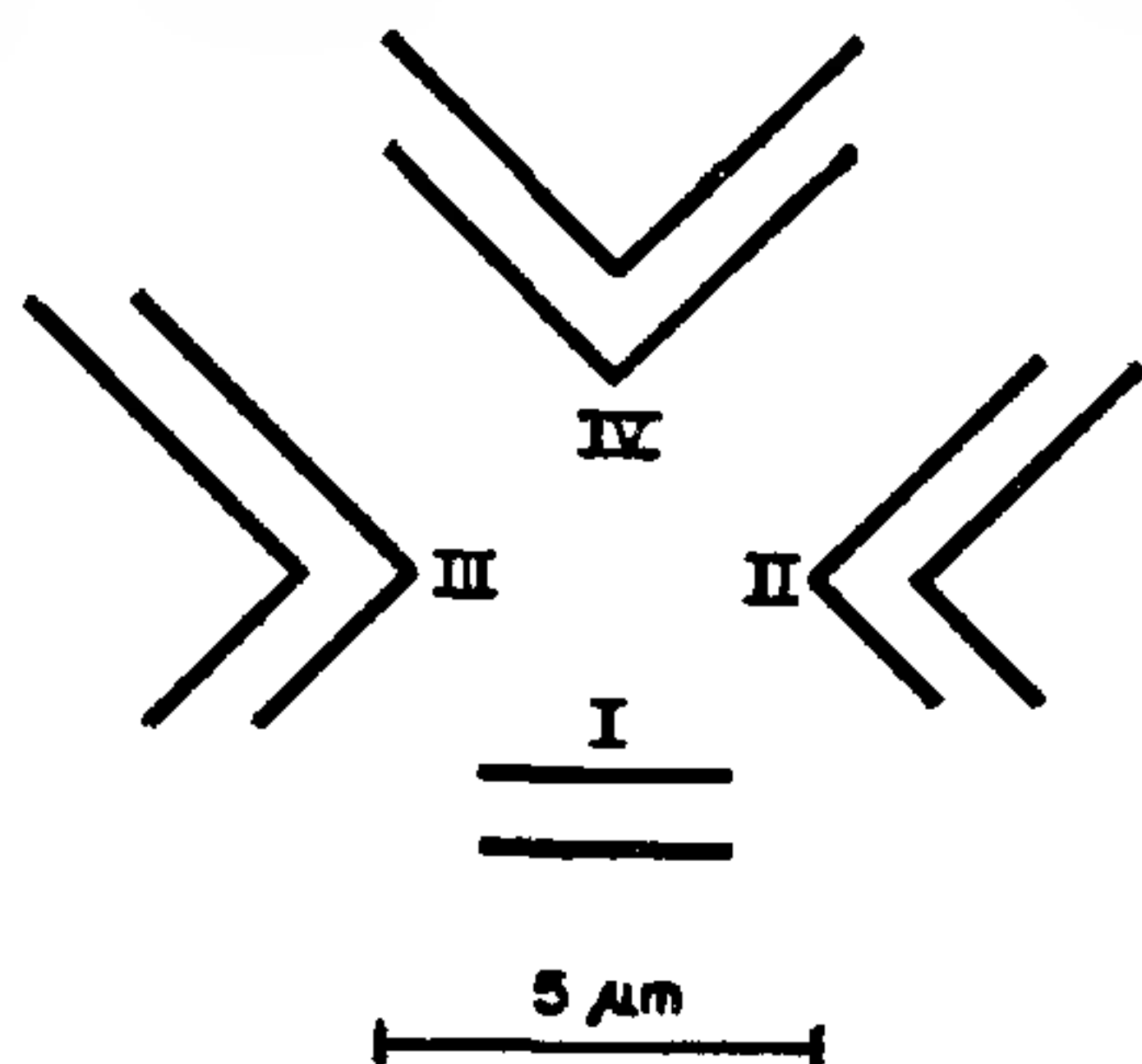


acrocentric pair (chromosome I) and one metacentric pair (chromosome IV) and the other two submetacentric pairs (chromosomes II and III). It is thus evident that the karyotypes of these two species of sandflies, one from the new world (*P. longipalpis*) and the other from the old world (*P. papatasi*) differ considerably.



1



2

FIGS. 1-2. Fig. 1. Metaphase chromosomes of *Phlebotomus papatasi*, $\times 1,500$. Fig. 2. Diagrammatic representation of the karyotype of *Phlebotomus papatasi*.

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KARYOTYPES OF THREE SPECIES OF MOSQUITOES FROM INDIA

CYTOGENETICS of mosquitoes has received much attention in recent years in an attempt to understand the genetic basis of insecticide resistance and genetic control. Even though more than 2400 species of mosquitoes are known to science so far, various cytogenetic studies have been conducted on less than 100¹⁻⁴. Kitzmiller² emphasized the need for standardized karyotype studies in additional species of mosquitoes to obtain data on heterosomes and relative arm length of mitotic chromosomes. The purpose of this communication is to report the karyotypes of three species of mosquitoes from India, viz., *Aedes* (*Stegomyia*) *novalbopictus* Barraud, *Aedes* (*Stegomyia*) *subalbopictus* Barraud and *Toxorhynchites splendens* (Wiedemann).

Brain tissues from the 4th instar larvae were employed to study the somatic chromosomes. Larvae of *A. novalbopictus* and *A. subalbopictus* were from approximately 35 and 5 laboratory generations respectively, whereas larvae of *T. splendens* were collected from the field (Khandala, Maharashtra State) and were reared in the laboratory up to 4th instar. The techniques employed for chromosome preparations were essentially the same as described by French *et al.*⁵. From each species 25-30 individual larval brain preparations were studied. For chromosome measurements the procedure used by Rai⁶, was followed. They were numbered according to McDonald and Rai⁷.

The diploid chromosome number was 6 in all 3 species (Figs. 1-3). Typical of mosquitoes, chromosome were arranged in 3 pairs. Occasionally (0.1-0.2% of the dividing cells) cells with polyploid chromosomes were also observed in all the 3 species. Somatic pairing of homologous chromosomes was frequent and was intimate at the centromere region. Sexual dimorphism in the chromosome complement was not detected in any of the species studied. The measurements of metaphase chromosomes and the ratio of the length of chromosome I to chromosomes II and III are given in Table.

All the chromosomes from 3 species of mosquitoes were metacentric. The ratio of length of chromosome I to chromosomes II and III in *A. novalbopictus* and *A. subalbopictus* was comparable to that of the other members of the genus *Aedes* thus far studied^{8,9}. The ratio obtained for *T. splendens* was closer to that of members of the genus *Aedes* than to members of the genera *Culex* and *Anopheles*. Both in *A. novalbopictus* and *A. subalbopictus* there was a considerable difference in length between chromosomes II and III (6-7% of the total length

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TABLE
Measurements of metaphase chromosomes in 3 species of mosquitoes from India

| Species | Chromosome I* (small) | | | Chromosome II* (large) | | | Chromosome III* (medium) | | | Ratio of length of I to II + III |
|---------------------------------|-----------------------|-------|--------|------------------------|-------|--------|--------------------------|-------|-------|----------------------------------|
| | p.c. | arm a | arm. b | p.c. | arm a | arm. b | p.c. | arm a | arm b | |
| <i>Aedes novalbopictus</i> | M | 5.5 | 5.5 | M | 7.7 | 7.7 | M | 6.7 | 6.7 | 0.382 |
| <i>Aedes subalbopictus</i> | M | 3.3 | 3.3 | M | 4.8 | 4.8 | M | 4.2 | 4.2 | 0.367 |
| <i>Toxorhynchites splendens</i> | M | 4.8 | 4.8 | M | 7.0 | 7.0 | M | 6.7 | 6.7 | 0.350 |

* all measurements in μ m.

p.c.—position of centromere.

M—metacentric.



FIGS. 1-3. Mitotic chromosomes from brain cells, lacto-aceto-orcein stained. Fig. 1. *Aedes novalbopictus*, \times 2,500. Fig. 2. *Aedes subalbopictus*, \times 4,000. Fig. 3. *Toxorhynchites splendens*, \times 3,000.

of 6 chromosomes), whereas in *T. splendens* this difference was much less (2% of the total length of 6 chromosomes). The variation thus observed in the comparative length between the chromosomes in mosquitoes belonging to different genera might be of evolutionary and genetic significance. However, further detailed comparative studies on the

karyotypes of additional species of mosquitoes are indicated.

I wish to thank Dr. N. P. Gupta, Director, and Dr. V. Dhanda, Assistant Director, for their encouragement during the course of the present study. My sincere thanks are also due to Mr. S. N. Guttikar of the Entomology Division, for his assistance in rearing *A. novalbopictus* and *A. subalbopictus* and for field collection and identification of *T. splendens* larvae.

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ON THE OCCURRENCE OF STRATIFIED CAMBIUM IN *SALVADORA PERSICA* L.

FOLLOWING Bailey¹, two types of cambia are recognized in the various plants showing secondary growth, namely storied or stratified and non storied or non-stratified. The former is recognized by the uniform length of the fusiform initials whereas in