

A NEW KARYOTYPE FOR *CULEX TRITAENIORHYNCHUS*

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Linkage group—chromosome correlations have been made in the mosquito, *Culex tritaeniorhynchus*, by the use of genetic and cytologic observations of radiation-induced inversions and translocations (Baker, Sakai, Mian 1971a and 1971b, and Sakai, Baker and Mian 1971). Linkage groups were assigned to the following chromosomes (Fig. 1A): linkage group I to the smallest chromosome, linkage group II to the submetacentric chromosome and linkage group III to the metacentric

chromosome. Sixteen heterozygous pericentric inversions were produced that completely or nearly completely suppressed crossing over in the males between golden (*go*) and sex (*M*) which represent the currently known extreme ends of linkage group I (25–27 map units). Evidence was also found suggesting that the centromere is between the two markers, *go* and *M*. The pericentric inversions were fairly easy to detect since the chromosome affected had changed from the normal metacentric

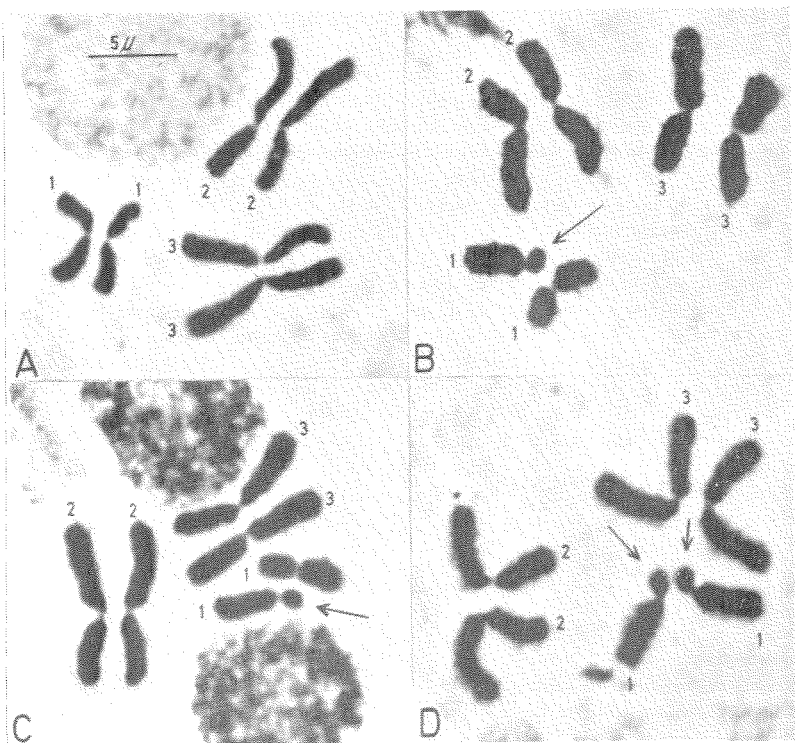


FIG. 1.—Metaphase chromosomes from testes. Arrows point to pericentric inversion chromosomes. A—Normal “wild type” complement. B—Heterozygous pericentric inversion on *m*-bearing chromosome. C—Heterozygous pericentric inversion on *M*-bearing chromosome. D—Homozygous pericentric inversion complement.



version is viable as a homozygote but semisterile as a heterozygote, a separate group may be evolved which is fully fertile, cytologically identifiable, and does not breed well with the parental population.

Except for the anophelines and possibly the subgenus *Lutzia* of the genus *Culex*, the karyotypes of all mosquitoes studied are surprisingly uniform (Baker and Aslamkhan 1969). This may possibly suggest that pericentric inversions have not played an important role in the evolution of these mosquitoes with uniform karyotypes. At least, no culicine mosquito karyotype has been reported which is similar to the new karyotype described above for *Culex tritaeniorhynchus*. Although probably by coincidence, the I(1)55 homozygous inversion karyotype bears striking resemblance to that of some of the anopheline karyotypes (Kitzmiller 1967; Aslamkhan and Baker 1969), particularly the *quadrimaculatus* female type. Here the X chromosomes are shorter than the autosomes, and they are definitely submetacentric (one long arm and one short arm). In this respect it is interesting to note that Kitzmiller (1953) has suggested the possibility that the chromosome with approximately equal length (a median centromere) as found in *Culex*, *Culiseta* and *Aedes* may have been derived from or may have given rise to the subtelocentric (submetacentric) type found in *Anopheles* by a pericentric inversion.

**SUMMARY.** A new karyotype has been established in *Culex tritaeniorhynchus* by selection for homozygosity for a pericentric inversion (I(1)55) on chromosome 1. Although no fertile egg rafts have yet been recovered from the homozygous inversion

females, the homozygous inversion males are fully fertile.

**ACKNOWLEDGMENTS.** This work was supported by U.S.P.H.S. Grants No. TW-00142 from the Office of International Research N.I.H. and No. IR22 A 107807 under the auspices of the United States-Japan Cooperative Medical Science Program, administered by the National Institute of Allergy and Infectious Diseases, N.I.H. We thank Prof. H. C. Barnett for his support and Messrs. M. Saghir, Nazar Hussain, M. Nasir, I. H. Zafar, M. S. Abbasi, A. Aziz and Nazir Khan for technical assistance.

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