Research Note

BRIEF NOTES ON THE CYTOLOGY OF NEOTROPICAL COLEOPTERA
2. Apate monacha F. *(Bostrychidae)*[1]

This large Puerto Rican Bostrychid of the subtribe Apatina of Bostrychinae: Bostrychini is supposedly conspecific with the original *monacha* Fabricius determined from Africa.[2,3] Chromosomes of four males encountered by Mr. Luciano Bracero on April 18, 1977, boring *Terminalia catappa* L. branches in Vega Baja, were studied using a simple squash method described earlier.[4] The paired testes of this species are formed by numerous lengthy follicles branching off from one point of the *vas deferens*. Their external anatomy thus resembles that of ovaries. Only about the apical one-third of each follicle still contained cell divisions; the rest was filled by spermatids and sperm bundles. Number of spermatozoa per bundle is over 500, presumably 512.

Spermatogonial mitoses show 22 metacentric chromosomes, one of them very small, apparently the *y* chromosome (Plate I, fig. 1). In M I, 10 autosomal bivalents are seen. All of them are unichiasmate dumbbells, with a conspicuous free arm pair (fig. 2). The sex bivalent is an Xy_p with a relatively large y_p. Still the size difference of the sex chromosomes is sufficient to distinguish from one another the two different M II plates (figs. 3 and 4).

The karyotype formula of *A. monacha* is thus 10 II + Xy_p. Little can be said about its phylogenetic affinities, because the knowledge of Bostrychoid karyotypes is still meagre. In two species, *Bostrychopsis bengalensis* Lesne and *Sinoxylon anale* Lesne, the basic Polyphagan formula, 9 II + Xy_p, has been retained,[5] but in the third known case, *Rhizopertha dominica* F., the autosomal number has been lowered by one pair.[6] Only two more remotely related Bostrychoids, an Anobiid,

[1] Manuscript submitted to Editorial Board May 16, 1977.

[2] Blackwelder, R. E., Checklist of the Coleopterous insects of Mexico, Central America, the West Indies, and South America, U.S. Natl. Mus. Bull. 185, Part 3: 343–550, 1945.

[3] Wolcott, G. N., The insects of Puerto Rico. Coleoptera, J. Agric. Univ. P.R. 32: 225–416, 1948.

[4] Virkki, N., Brief notes on the cytology of Neotropical Coleoptera. 1. *Colaspis tricolor* Perty (Chrysomelidae:Eumolpinae:Colaspini), J. Agric. Univ. P.R. 59: 305–6, 1975.

[5] Manna, G. K., and Lahiri, M., Chromosome complement and meiosis in forty-six species of Coleoptera, Chromosome Inf. Serv. 13: 9–11, 1972.

[6] Smith, S. G., and Brower, J. H., Chromosome numbers of stored-product Coleoptera, J. Kans. Entom. Soc. 47: 317–28, 1974.

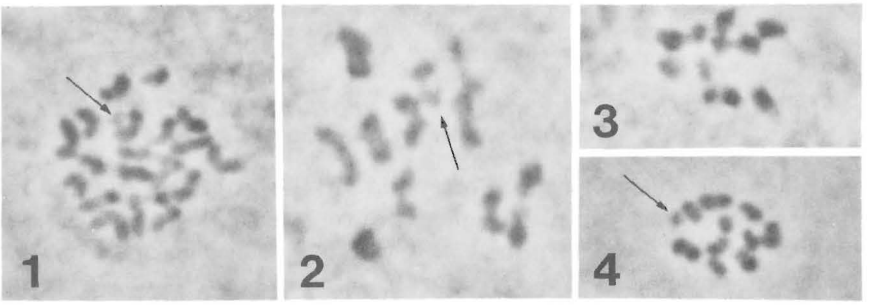

Plate I (figs. 1 to 4)—*Apate monacha*. Chromosomes in spermatogenesis. Arrow shows *y* chromosome in 1 and 4, Xy_p bivalent in 2. 1. Spermatogonial metaphase; 2n=22. 2. M I; 10 II + Xy_p. 3. M II; 10 + *X*. 4. M II; 10 + *y*. Phase contrast, 1810 ×.

Ernobius mollis L.,[7] and a Cisid, *Octotemnus laevis* Csy,[8] share the same formula with *A. monacha*. Such polyphyletic changes in autosomal number are common in Coleoptera and presumably controlled by centric fusions and fissions, with a tendency of fission chromosomes to return to metacentry.[8]

Niilo Virkki
Department of Crop Protection

[7] Virkki, N., Cytology of male meiosis in certain European forest beetles of the families Scolytidae, Cleridae, and Anobiidae, Ann. Acad. Sci. Fenn. IV 49: 1-18, 1960.

[8] Smith, S. G., and Virkki, N., Coleoptera, in: B. John, Ed, Animal Cytogenetics, Borntraeger, Berlin (in press).