REPLY TO COMMENTS ON "CHROMOSOMAL EVOLUTION IN *PEROMYSCUS*"

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We did not intend to imply that the ideas expressed concerning the primitive karyotype were more than a hypothesis (Lawlor, 1974). We are aware of the problems of determining a primitive versus derived conditions for karyotypes and our discussion concerning the primitive karyotype was presented in a "feet on the desk" spirit. As new techniques are developed, some of these theories may be tested. For instance, the new banding techniques (see Mascarello et al., 1974) may shed some light on how closely related the karyotypes of *P. melanotis* and *P. polionotus* are to each other and to those of various chromosomal races of *P. maniculatus*.

Dr. Lawlor's caveat (concerning fusions versus fissions and karyotypes with the most acrocentrics are always the most primitive) seems to us to be over-stated. We agree that fissions occur in nature (see Baker, 1967, 1970, 1973) and are the most parsimonious explanation of evolutionary pathways in some cases. We also believe that in some cases the primitive karyotype is composed of all biarmed elements (see Baker, 1973 where the primitive karyotype is hypothesized to be composed entirely of biarmed elements and the karyotype of ten species is explained by increases in the diploid number, probably by fissions). However, Baker (1973) also points out that within the group under study (Phyllostomatid bats) there seems to have been a greater tendency to reduce the diploid number rather than to increase it. We have chosen to cite Baker's work to point out that we were cognizant of other possibilities but that in this case we felt that the karyotypes of *P. melanotis* and *P. polionotus* were more primitive than those of *P. maniculatus*. Other workers than those cited have also used fission to explain their data (for instance, see Fredga, 1972). To us it appears that current researchers in cytosystematics (including the present authors) are not blinded by dogma. Literature cited by Dr. Lawlor and those cited above serve well to illustrate the point that fission is a viable explanation of chromosomal evolution. However, we do confess that we believe that in the majority of systems where the fundamental number remains constant the direction of change will more often prove to be the result of fusions than fissions. How much the balance will favor fusions remains unclear to us.

Concerning other points made by Dr. Lawlor, we think our paper (Bowers et al. 1973) adequately explains how we differ in opinions. We also encourage the readers to review Brown's (1957) model. Our hypotheses rest, and we anxiously await additional data.

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