I REFER to the paper by D. A. Hughes (S. Afr. J. Sci., Nov. 1965, pp. 397-403). The author in his concluding remarks (on the distribution of nymphs of two species of Ephemeroptera) postulates that "the macro-habitat is a function of the microhabitat." This appears to be the case for the one environmental variable, namely light, studied experimentally by Hughes but I feel it is heuristically misleading to generalize — other important determinants of distribution, for example temperature, are not "micro-distributed" and therefore cannot fall within the scope of Hughes' postulate, thus reducing it to rather limited validity.

In the discussion to the paper Noble speculates that "it would be particularly interesting to see why Batis harrisoni is found predominantly on top of stones and Tricyrthus discolor underneath them." I would suggest the following explanation: both species are algal grazers with partial niche overlap (that is, both occupying the same habitat but different microhabitats, and both competing for the same food supply which is concentrated on the upper surfaces of the stones — the area receiving light). During the day B. harrisoni is on top and T. discolor underneath, for the reasons expounded by Hughes. At night, T. discolor moves up to feed and B. harrisoni vacates its position to enter the organic drift. In this way competition between the two species for a common food supply is minimized, or at least reduced — an elegant (but as yet unproven) demonstration of Klopfer's assertion that "in a heterogeneous environment two specialized species can more efficiently utilize the resources of that environment than a single less specialized species." In this connexion Klopfer also says "It has become a routine exercise for ecologists to demonstrate that sympatric species do not share the same foods. Where the same items are consumed interspecific differences are presumed to exist in the sizes of the objects taken or in the time of the day when feeding occurs." Perhaps both differences play a part in the case under discussion.

It should be remembered that most if not all results in the literature are based on daytime sampling which probably presents an incomplete picture of the micro-distribution of riverine fauna.

Work by Müller in Germany has shown that Baetidae there (B. rhadam and B. venus) have a very distinct circadian rhythm of movement — numbers in the organic drift at right are between 27 and 83 times as great as during the day. The rhythm is apparently geared to light intensity. B. harrisoni is not nearly as stenocline as T. discolor and can be found in large numbers on gravelly bottoms and in vegetation in the current. This gives some support to my scheme above which is suggested in the hope that it will lead to further investigations.

REFERENCES

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