The curves presented in figure 3 by Fan and Bard are taken as evidence of ordinary electrochemical processes. We agree that such processes will be involved, especially if the electrodes are partly immersed in water. However, we conclude from our experiments that other processes have to be taken into account. With platinum-carbon electrodes on mica, we have measured *i-V* curves that were essentially linear with only a small hysteresis (see also figure 3D in the comment of Fan and Bard). No substructure in the current curve was observed, not even in the voltage range between ±2V, where the electrochemical processes usually leave their signature. Therefore, we infer that ordinary electrochemical processes are not the only processes involved in the measured currents. From these and other experiments (*1*), we conclude that, in addition to ordinary ion conduction, other conduction processes (such as proton hopping) contribute to or even dominate the observed surface conductivity.

Is it really possible to work at 100% relative humidity as implied in figures 2B and 3 of the comment? We expect that for such a humidity the thickness of surface-absorbed water films is ill-defined. In figure 2B of their comment, Fan and Bard state that they distinguish between zones of different ionic conductivity. In STM images, however, information about conductivity and topography is always superimposed and can only be separated directly if one of both quantities is constant. The image, taken in constant current mode, probably displays a nominal height contrast of 3 nm, assuming that the total z range is the same in figure 2, A and B. In contrast to this value of 3 nm, the decay length of the current with the tip-sample distance is about 1 nm or less, as measured by Fan and Bard as well as plotted by us (Fig. 1). Therefore, it seems difficult to explain the nominal height range in figure 2B of the comment just by variations in conductivity. Drawing conclusions about local variations of conductivity is not as straightforward as described by Fan and Bard.

R. Guckenberger
Max-Planck-Institut für Biochemie,
D-82152 Martinsried, Germany
M. Heim
Medizinische Biophysik,
Klinikum rechts der Isar,
Technische Universität München,
D-81675 München, Germany

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31 May 1995; accepted 13 June 1995

18*S* rDNA from Lophophorates

Kenneth M. Halanych *et al.* analyze only one bryozoan for their study (*1*), and that species, *Plumatella repens*, is not representative of the Bryozoa as a whole (*2*). Thus, their conclusions are correspondingly disputable.

Plumatella repens belongs to the Phylactolaemata, an exclusively freshwater subdivision of this overwhelmingly marine phylum. The earliest fossil phylactolaemates are Cenozoic, whereas the rest of the Bryozoa (Gymnolaematea and Stenolaemata) originated in the Ordovician. Phylactolaemates produce statoblasts (asexual propagules similar in function to sponge gemmules); possess complete layers of body wall musculature, an epistome and U-shaped lophophore; and undergo budding from anatomically different body regions. Their larvae are distinct from gymnolaemate and stenolaemate larvae and are brooded differently. The differences between Phylactolaemates and other Bryozoa are so great that the burden of proof might best be placed on those who would unite these taxa within the same phylum. The results presented by Halanych *et al.* are interesting, but 18S ribosomal evidence is incomplete until a bryozoan is studied that is more representative of the main line of bryozoan evolution.

William C. Banta
Byron T. Backus
Department of Biology,
American University,
Washington, DC 20016, USA
E-mail: wcbanta@american.edu

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13 April 1995; accepted 12 August 1995

Response: Since the publication of our report, a new 18S ribosomal DNA bryozoan (ectoproct) sequence, from a species within Gymnolaemata, has been reported and analyzed (*1*). These results indicate that the new bryozoan taxon, *Alcyonidum gelatinosum*, is on the protostome side of the metazoan tree and within the lophotrochozoan clade. Hence molecular data supporting our major conclusions are now available for two of the three bryozoan classes.

Kenneth M. Halanych
Department of Biological Sciences,
Southern Methodist University,
220 Fondren Science Building,
Dallas, TX 75275, USA
John D. Bacheller
Anna Marie A. Aguinaldo
Stephanie M. Liva
Molecular Biology
Institute and
Biology Department,
University of California,
Los Angeles, CA 90024, USA
David M. Hillis
Department of Zoology,
University of Texas,
Austin, TX 78712, USA
James A. Lake
Molecular Biology
Institute and
Biology Department,
University of California

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15 November 1995; accepted 16 November 1995