LETTERS

Law of the Sea Negotiations

The short report on the recent Geneva session of the Law of the Sea Conference by Deborah Shapley (News and Comment, 30 May, p. 918) is deficient in describing the "Informal single negotiating text" on the law of the sea; perhaps the most serious deficiency concerns the articles on scientific research. Shapley's report misses significant elements of the relevant articles and omits mention of other, quite different, articles on the same subject. In total, the draft articles are a disaster because of their potential impact upon the conduct of research at sea, but one would not get this impression from the *Science* report. Scientists should be aware of the unsatisfactory state of these articles, since versions of some of them could well be in the treaty that eventually emerges if nothing is or can be done to change the outcome.

Part I of the negotiating text concerns the seabed and contains what should be considered wholly unacceptable articles on research. These provisions would permit seabed research, such as the Deep Sea Drilling Project, only after the sponsoring entity reaches a contractual arrangement or some other form of association with the International Seabed Authority, which would be created by the treaty. The Authority would not be required to conclude such a contract or association, and in any case the arrangements it makes must permit it to exercise direct and effective control over the research activity. Part III of the text also contains articles on seabed research, and it provides, as Shapley notes, for free conduct of research subject to notification to the Authority, but there is presently no assurance that the Part III text will be adopted.

Shapley's description of the economic zone and continental shelf articles is only partially correct. Research in the economic zone (approximately 35 percent of the ocean if a 200-mile limit is adopted) and on the continental shelf (where the margin extends beyond 200 miles) is dealt with in Parts II and III of the text, and the two parts are not entirely consistent. In Part II, Articles 49 and 71 provide that consent of the coastal state must be obtained to conduct research in the economic zone and on the shelf. This means that a substantial part of current marine research at sea would, in the future, be subject to the discretionary control of the coastal state. The text does add that, under certain conditions, such consent shall not normally be withheld, but this same proviso has proved worthless in the existing shelf treaty, and no one takes it as a serious limitation on coastal state authority in the informal text.

Part III, which is partially described in Shapley's article, does make a distinction between resource-related and fundamental research in the economic zone, requiring coastal consent only for the former. However the distinction between the two types of research is not defined in these articles; this task is left to an unidentified forum at some unspecified future time. In practical effect, the lack of a definition leaves it to the coastal state to decide which research is resource-related, and that decision is not effectively reviewable. In essence, these articles also would establish a consent regime for research.

It seems likely that, unless vigorous action is taken by the scientific community, there will be serious obstacles to scientific research at sea in the future as a result of a Law of the Sea treaty. These obstacles will mainly result from the transfer of control over research from sponsoring groups and states to coastal states. Research certainly will not end as a result, but its pace, magnitude, and location are likely to be affected in undesirable ways because of funding and political decisions attendant upon the shift in control. It is likely, too, that scientists will choose not to conduct research in those areas where major barriers and unpalatable conditions are imposed.

WILLIAM T. BURKE

School of Law,
University of Washington,
Seattle 98195

Mention of the consent requirement of Articles 49 and 71 in Part II of the negotiating text was omitted because the committee that wrote them, Committee II, has no jurisdiction over scientific research. Committee III, whose views are reflected in Part III of the text, has jurisdiction over most scientific research, and Committee I, whose views are reflected in Part I, has some jurisdiction over resource-related research in the high seas and the seabed.

—D.S.

Tetrapod Gait Patterns

In his review of P. P. Gambaryan's *How Mammals Run* (*1*), Matt Cartmill (23 May, p. 844) states that asymmetrical gaits "are of particular importance for two reasons: they are the characteristic high-speed gaits of terrestrial mammals, and they are unique to the class Mammalia." Asymmetrical gaits are divided into two classes by Gambaryan, either ricochets or gallops.