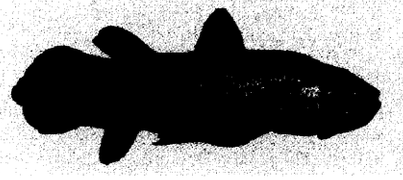
# LETTERS

## Something fishy

**Rodney Nichols, President of the New York Academy of Sciences, warns that the "research community must pay more attention to the international arena and evaluate the [U.S.] State Department's performance." A zoologist offers lore about the Coelacanth (below), and evolutionary biologists discuss the "long-standing and still unsettled debate" about how the "living fossil" fish is related to land vertebrates. And biologists evaluate a model of "quarter-power scaling relationships."**



## Global Choices

I was the principal author of the report *Science and Technology in U.S. International Affairs*, from the Carnegie Commission on Science, Technology, and Government (*1*), which was used as a benchmark for James D. Watkins's superb Policy Forum (1 Aug., p. 650). Like Watkins, I write with regret about the deterioration in the integration of science in foreign policy. Under Secretary of State Timothy E. Wirth's response (29 Aug., p. 1185), while intelligent and earnest, does not confront the thrust of Watkins's critique.

Two points merit emphasis. The first is the need for cohesive U.S. leadership in every international institution that depends on science, engineering, and medicine. For instance, the World Health Organization faces major challenges, as do the International Telecommunications Union and the International Atomic Energy Agency. The essential renewal of international programs will demand not only stern priority-setting, but also the highest professionalism. The United States must pace that process.

Second, as Watkins emphasized, the challenge for the U.S. State Department is daunting. Almost every U.S. global interest is intertwined with science and technology—from trade to the environment, from energy to intellectual property rights, and from chemical weapons control to space exploration. Further, for "big science" such as the International Thermonuclear Experimental Reactor, the United States must help orchestrate projects that have deep technical uncertainties, yet depend on reliable global collaboration and large, stable funding over long periods of time.

The New York Academy of Sciences has explored these broad themes, has made recommendations (*2*), and has been following up with studies about topics such as international health and economic development (*3*). But too few organizations outside the State Department are pushing the envelope for the approaches that are needed to inform U.S. global choices with technical substance.

U.S. Secretary of State Madeleine Albright and Under Secretary Thomas Pickering, who was brilliantly successful earlier in his career as Assistant Secretary of Oceans, Environment, and International Scientific Affairs, appreciate these issues. I'm convinced that they can turn the trends around. But the research community must pay more attention to the international arena and evaluate the State Department's performance.

***Rodney W. Nichols***
*President and Chief Executive Officer,*
*New York Academy of Sciences,*
*2 East 63rd Street,*
*New York, NY 10021, USA*
*E-mail: rnichols@nyas.org*

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3. *Global Public Health Collaboration: Organizing for a Time of Renewal* (Special Report, Science Policy Program, New York Academy of Sciences, New York, 1997); *Ann. N.Y. Acad. Sci.* **798** (1996).

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## Coelacanth Catches

In the article "'Living fossil' fish is dethroned" (Research News, 5 Sept., p. 1436), Wade Roush states, "Paleontologists of the 19th and early 20th centuries knew coelacanths only from the fossil record. . . . Then, in 1938, anglers off the Comoro Islands in the Indian Ocean stunned the scientific world by catching a live coelacanth, the first of many."

These statements confuse two historical incidents (*1*). The first specimen of a modern coelacanth was recovered by a commercial trawler off the coast of South Africa on 22 December 1938. It was taken off the mouth of the Chalumna River, Eastern Cape Province, and located by Marjorie Courtenay-Latimer, of the East London Museum, in the local fish market. J. L. B. Smith, Senior Lecturer in Chemistry at Rhodes University, Grahamstown, was the officiating ichthyologist at the museum, but was away in Johannesburg at the time. Consequently, Miss Latimer saved only the head and the skin of the then rotting fish, as she recognized it as peculiar but not as a coelacanth. Smith subsequently named it *Latimeria chalumnae* in her honor and to record its provenience.

It was not until 1952 that Smith, after much searching and a leaflet campaign on the Comoro Islands offering rewards to line fishermen (not "anglers"), obtained the first complete specimen. He persuaded South African Prime Minister Malan to order a South African Air Force DC-3 "Dakota" to fly to the Comoro Islands and bring to South Africa this first complete and preserved specimen.

***Charles S. Churcher***
*Department of Zoology,*
*University of Toronto,*
*Toronto, Ontario, M5S 3G5, Canada*

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Roush writes that coelacanths, including the living species *Latimeria chalumnae* (*1*) appear to be "out of the running" as the extant sister group to tetrapods. Evidence cited includes recent mitochondrial DNA sequence analyses (*2*) suggesting that lungfishes are more closely related to land vertebrates than either group is to coelacanths. This is the latest in a series of debates spanning the last 150 years (*3*), and it does not resolve the issue, as implied. Nor does this hypothesis refute "predominant textbook dogma." We surveyed five leading texts of vertebrate biology (*4*–*8*). Two (*4*, *7*) present a sister-group relationship between coelacanths and tetrapods, two (*5*, *6*) support a sister-group relationship between lungfishes and tetrapods, and the fourth (*8*) is equivocal. Roush's article states that study of extant lungfishes is pertinent to understanding the biology of extinct tetrapods. This is speculative at best. The long-standing and still unsettled debate regarding features such as the homology of the external nares in tetrapods and lungfishes (*9*) is unlikely to be resolved by molecular phylogenetics.

***William E. Bemis***
***Andrew M. Simons***
*Graduate Program of Organismal and Evolutionary Biology,*
*University of Massachusetts,*
*Amherst, MA 01003, USA*
*E-mail: wbemis@bio.umass.edu*
*E-mail: asimons@bio.umass.edu*

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