Peaceful Triumphs

Magnificent Voyagers. The U.S. Exploring Expedition, 1838–1842. HERMAN J. VIOLA and CAROLYN MARGOLIS, Eds. Smithsonian Institution Press, Washington, DC, 1985. 303 pp., illus. $39.95; paper, $19.95.

The present structure and size of American science are so vast that the uncertainty that attended the early years of science in the United States is now scarcely imaginable. Yet in the first half of the 19th century the scientific enterprise was a fragile affair heavily dependent upon the determination and enterprise of small clusters of savants largely restricted to the cities of the eastern seaboard.

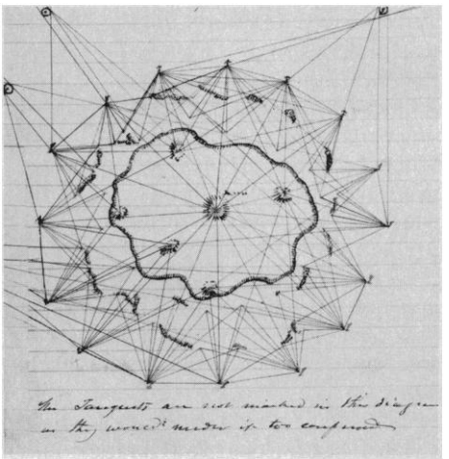
For the American scientific community, such as it then was, the constant concern of those early decades was the difficulty of obtaining funding. Both scientists and scientific institutions were continually threatened with bankruptcy. Science was taught at such major colleges as Yale, the University of Pennsylvania, Princeton, and Harvard, but nowhere did it receive substantial support. Penn established a science faculty as early as 1816, but it was to last only 12 years. Harvard's attempt to build an observatory in 1805 succeeded only 34 years later.

In this context of pitifully small support for science, the United States Exploring Expedition came as a thunderclap to the American scientific community. The proposed voyage of discovery—with a mandate to survey and chart a large part of the Pacific Ocean, to explore the southern and northeastern continental margins as well as the Pacific Island groups, and to carry out investigations in geology, anthropology, and natural history—was to last four years. As James Kirke Paulding, Secretary of the Navy, expressed it to Charles Wilkes, commander of the squadron, "Although the primary object of the expedition is the promotion of . . . commerce and navigation, you will take all occasions . . . to extend the bounds of science, and promote the acquisition of knowledge."

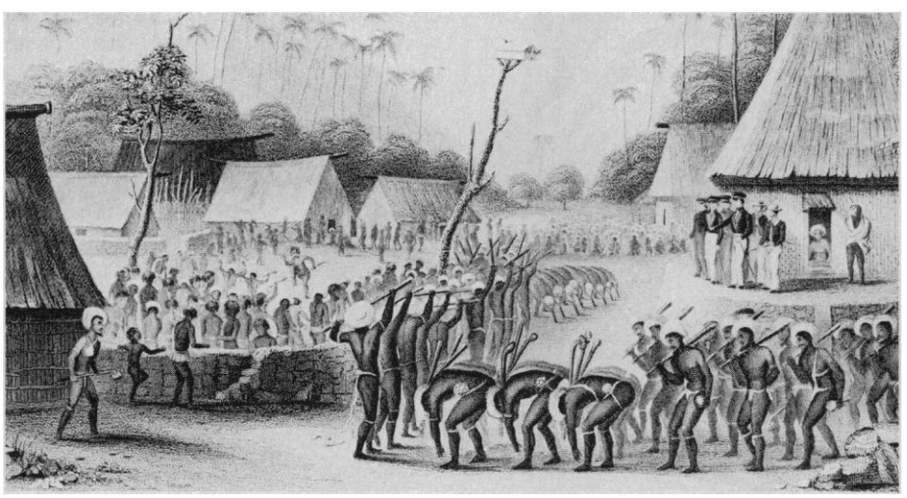
No wonder that scientists in Philadelphia, New York, and Boston applied almost *en masse* for a place on the expedition. This was a golden opportunity to win repute and fame. Indeed the federal government, by subsidizing science—for the first time—as a large-scale cooperative venture, established a precedent for future decades and, moreover, catalyzed the creation of a national scientific association, which appeared a few years later with the genesis of the AAAS in 1848.

Magnificent Voyagers—which consists of 12 essays on the scientific achievements of the expedition, the formidable logistics necessary for its success, the expedition's impact on the development of the nascent Smithsonian Institution, and the contributions of the mercurial commander, Charles Wilkes—is a spectacular achievement in itself. The expedition has been the subject of several previous accounts, most notably William Stanton's brilliantly evocative *The Great United States Exploring Expedition of 1838–1842* (University of California Press, 1975; reviewed in *Science* **192**, 653 [1976]), but none have conveyed so vividly and with such a wealth of illustrative detail that the expedition was a triumph primarily for its enduring contributions to scientific knowledge.

Thus the expedition brought back 50,000 specimens of plants from Fiji, the Hawaiian Islands, and the northwestern United States; these specimens, later examined by Asa Gray and John Torrey, created the foundations for Gray's pioneering work in plant geography and served as the nucleus for the present United States National Herbarium. As for the marine fauna, the expedition's large collection of mollusks, crustaceans, corals, and echinoderms dramatically expanded previous knowledge of the colors, appearance, and morphology of the living animals. James Dwight Dana, the expedition's official geologist, made a crucial contribution to 19th-century science by his recognition that the volcanic island chains of the South Pacific could be ordered through a systematic age progression; though Dana never synthesized his many observations into a grand theory, his insights during the expedition proved remarkably prescient.



Drawing from Charles Wilkes's unpublished instructions to his officers showing his procedures for conducting a "running survey" of an island. [From R. E. Ehrenberg *et al.*'s chapter in *Magnificent Voyagers*; courtesy Manuscript Division, Library of Congress]



Meke wau or club dance as viewed by members of the Exploring Expedition on Ovalau, Fiji, in 1840. "These complex performances depicted historical and mythical battles with offensive and defensive actions. Such *meke* were considered by Fijians to be the essence of their culture and were presented as gestures of friendship from one sovereign nation to another. On this occasion a 'very large pile' of clubs [see cover] was presented to the Expedition." [Reproduced from Charles Wilkes's *Narrative of the United States Exploring Expedition* in A. L. Kaeppler's chapter in *Magnificent Voyagers*]

The essays on these and other aspects of the expedition are complemented by a series of splendid illustrations gleaned from numerous archives; the paintings, photographs, and sketches are of exceptional quality and vividly show that the expedition was also a sometimes hazardous adventure. In sum, this book—which grew out of an exhibition currently at the Smithsonian Institution and scheduled to travel to several other cities in the United States—stands as a fitting tribute to that small band of explorers who, as one contemporary observer put it, sailed out of Norfolk "in fine spirits, elate with anticipations of the peaceful triumphs, not less worthy of the wreath of fame than those 'of grim visaged war,' which await the successful results of scientific research."

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