

# NAGT/GSA Symposium on Geoscience Education in Native American Communities

Steven Christian Semken  
Navajo Dryland Environments Laboratory  
Navajo Community College  
Shiprock, Navajo Nation, New Mexico 87420-0580  
e-mail: scsemken@ncc.cc.nm.us

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As soon as European-American geologists and naturalists undertook to explore, map, sample, and report on the rocks of the “New World,” they could not help but encounter its indigenous populations. Here were societies that possessed intimate and detailed knowledge of Earth systems derived from millennia of direct contact and careful observation (see Savoy, 1992, for a historical review from a geologic and geographic perspective). What they could have shared! But the roughshod conquest of the Americas – genocidal in some places, assimilationist elsewhere, and intellectually condescending throughout – afforded scant opportunity for lasting scientific discourse.

Fortunately, there is a new opportunity now. Native Americans have survived the conquest and, although they have much damage to undo, they have entered a period of ascendent political and economic sovereignty, and linguistic and cultural renewal (Deloria and Lytle, 1984). Each of the Native American nations, tribes, bands, and other communities will at least require scientific literacy for their members, and, hopefully, will have a cadre of native-born professionals trained in the earth and environmental sciences, as governmental control of Native lands and resources is removed.

Geoscientists can also learn from the first Americans. Frodeman and Turner (1996) argue that as the principal function of the geologist changes from exploration and extraction of resources to stewardship of an Earth now dominated by humanity, the working definition of the science must expand to incorporate and address aesthetic, economic, and political concerns that have traditionally been associated with the humanities and social sciences. If this is the case, twenty-first century geoscience could benefit from an infusion from indigenous cultures, many of which retain a deep, place-centered awareness of natural materials, landforms, processes, and cycles, and a circumspect approach to land and resource use.

Before this can occur in the United States and Canada, Native Americans must participate much more actively in geoscience education and research than they do now. After the poverty of resources and

personnel that is common to nearly every educational institution operating in Indian Country, the next greatest barrier to that objective may simply be a lack of communication among those who are now teaching the earth sciences to predominantly Native American populations, whether in K-12 schools, tribally-controlled colleges, affiliated universities, or collaborative outreach programs. Educators have identified teaching styles and examples that are especially effective for Native American students (for example, see Gilliland, 1992; AISES, 1995), but these rarely involve earth science.

As a first step toward attaining a more regular dissemination of exemplary programs and ideas, the NAGT-sponsored symposium *Geoscience Education in Native American Communities* was convened during the 1996 Geological Society of America (GSA) Rocky Mountain sectional meeting in Rapid City, South Dakota, which is the urban center for a region with a large Native American population. Six oral presentations at this unique symposium covered topics that included educational outreach programs for Native American (referred to as First Nations in Canada) K-12 students and teachers in Montana, New Mexico, British Columbia, and Manitoba; integration of traditional Yakama and Navajo knowledge of Earth processes and environmental management into undergraduate geoscience curricula; and the significance of narratives, names, and place in Cree ethnogeology. Four of the six groups of authors now present papers in this issue of the *Journal of Geoscience Education*. (The abstracts of all six presentations at Rapid City can be found in *GSA Abstracts with Programs*, volume 28, number 4, 1996.)

It is important to note that none of the first authors of these papers was born into the community she or he has interacted with and should not be taken as an expert on Native culture. The inequality that incited this symposium also ensured that these first reports would be coming in from the perspective of European-American geoscientists, albeit ones who have had the good fortune to work with a group of gracious and open-minded indigenous educators and students. Should our mutual efforts succeed, I expect that similar symposia and workshops will be initiated by Native Americans themselves.

To its credit, the geoscience community has begun to offer tangible support not only for the teaching of European-American science to Native Americans but for the study, advancement, and incorporation of the autochthonous earth science that has always resided within the first cultures of the Americas. The authors specifically thank Alvis Lisenbee and Colin

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The authors hope that these papers will be of interest, and perhaps useful, to geoscience educators no matter where they are working. We also wish to encourage those individuals whom we have not yet met, Native or non-Native, actively or potentially involved in Native American geoscience education, to contact us, so that your knowledge can be brought into the circle.

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