

Telecommunications Technology and Native American Cultures 2

Culture—including language, spirituality or religion, creative expression, historical interpretation, traditions, values, and identity—is a cohesive force in Native American society. For much of U.S. history, federal policy had the effect of subjugating Native cultures to that of the majority society. This was true for American Indians in the contiguous 48 states; Indians, Aleuts, and Eskimos in Alaska; and Native Hawaiians in Hawaii. Many of today's social and economic problems are generally believed to have been caused or exacerbated by the erosion and loss of culture. Thus, renewing and strengthening Native cultures is considered by Native Americans and others to be a necessary condition for rebuilding healthy Native American communities. In recent decades, federal policy has shifted to recognize the importance of Native American cultures.

Telecommunications technology—broadly defined to include telephone, videoconferencing, computer networking, information systems, multimedia, radio/TV, and the like—offers considerable potential to help Native Americans reestablish and strengthen their cultures. It offers new opportunities to save endangered Native languages, including traditional stories and histories, and to perpetuate language with new educational software and greater opportunities to converse with other Native speakers. Using telecommunications, cultural information (including art, songs, stories, dances, research findings, genealogies, and historical interpretations) can be easily shared and distributed among rural and metropolitan Native American communities. It also allows Native Americans, as individuals or through institutions, to broaden public awareness of their cultures. Museums, libraries,



and schools would greatly benefit from telecommunications technologies. They routinely share cultural information and try to promote broader understanding of Native cultures among the U.S. population at large. Culturally sensitive social service institutions would also benefit from readily available cultural material, such as traditional healing research or genealogical information systems.

While sharing cultural material may help broaden public awareness, it also could work against the promotion of Native American cultures if the material were nonauthentic. The ease of transmitting and manipulating digitized material using telecommunication technologies could exacerbate ongoing cultural problems, such as: 1) continuation of negative stereotypes of Native peoples; 2) non-Native Americans posing as spiritual leaders and elders in public forums; and 3) the difficulty of protecting sacred information, such as sacred sites of worship and rituals, from both the general public and unauthorized community members.

Realizing the benefits will require leadership, training, and adequate funding. Mitigating the problems will require tribal and public information policies for access, freedom of speech, privacy, and security for both users and providers of information and cultural material. To ensure that the technology empowers Native Americans in revitalizing their cultures, Native Americans will need to have a central role in controlling, managing, and implementing these technology-enhanced cultural opportunities. If not, there is the potential that non-Native Americans, knowingly or unwittingly, might disseminate inaccurate information or perpetuate negative cultural stereotypes. If Native Americans do not take an active role, federal and state information policies may not be sensitive to the cultural values of Native American communities. An overall strategy to strengthen Native cultures might include formulating an information policy, providing legal

protections for cultural property rights, and coordinating efforts to use scarce financial resources by distributing them effectively among many competing projects.

NATIVE AMERICAN CULTURAL AND COMMUNITY CHALLENGES

For years, Native American cultures and communities have been subjugated by federal and state laws and policies of assimilation (see box 2-1). However, despite years of repression, Native American values, cultures, and religions have endured. Traditional core values include honoring the Earth, according children and elders a very high level of respect, and living a balanced life in which the needs of community, family, and self are all attended to. And traditional Native Americans show reverence for the environment, Mother Earth and Father Sky, in everyday actions and decisions. Moreover, many are less concerned with an individual's role in the economy, a "job" or "career," than with living a life that reflects valued traditions. These core values have been difficult to pursue in recent times.

Many Native American communities face social and economic challenges far greater than most of the United States. High-school dropout rates, suicide, alcoholism, unemployment, and poverty within Native American communities are among the highest in the United States. Specifically,¹ the suicide rate for American Indians is more than twice the rate for all other nonwhites; American Indian youth have the highest high-school dropout rate of any minority group; the poverty rate for American Indian families is 24 percent compared with 10 percent for the general population; and the poverty rate for several Indian tribes is more than 40 percent (quadruple that of the general population).

A recent Bureau of Indian Affairs (BIA) survey concluded that BIA high school students "engage in behaviors that put them at risk for significant

¹Harold L. Hodgkinson, with Janice Hamilton Outtz and Anita M. Obarakpor, *The Demographics of American Indians: One Percent of the People; Fifty Percent of the Diversity* (Washington, DC: Institute for Educational Leadership, Inc., Center for Demographic Policy, 1990).

BOX 2-1: Historical Note: Repression of Indian Culture

in the 1890s, Captain A E Woodson brought remarkable energy to his job as an Indian agent. When he arrived at the Cheyenne and Arapaho reservation in Oklahoma, he found the Indians "indulging in the grass dance and enjoying the medicine feasts without molestation." Accordingly, his "first act was to forbid dances and feasts..." Once begun, Woodson launched himself wholeheartedly into the business of forbidding. He undertook to prohibit the practices of medicine men or shamans, the custom of sharing goods with relatives, traditional forms of marriage, and visits to other reservations. When the Cheyenne and Arapaho people resisted [Captain Woodson's] interference in their lives, their defiance only convinced Woodson that he was in the right. "An agent must sacrifice any desire to be popular," Woodson wrote, "if he be inspired to do his whole duty."

When the Cheyenne and Arapaho people resisted his orders and hired another white man to pursue his removal, Woodson wrote to the Department of the Interior, explaining his struggle with his charges. The Indians, he said, showed "a rebellious spirit in opposition to the methods which have been inaugurated with the sanction and approval of your office..." This resistance had gone as far as "an open expression of disapproval of my regime, which is distasteful to the old men who are wedded to barbarous customs..." Woodson [explained that he] had simply "endeavored to institute newer, and in my opinion, better methods tending to the improvement of the condition of these people..." The Department's response was, for Woodson, very gratifying. The Indians had to be restrained "from the indulgence in any practices which tend to continue them in barbarism.," [wrote the Department].

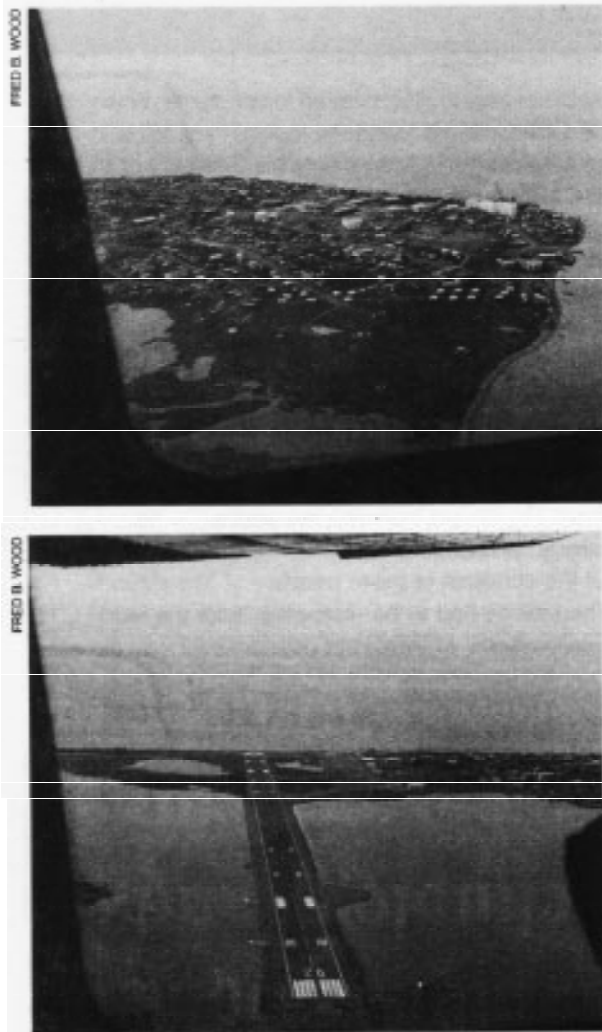
SOURCE Excerpted from Patricia Nelson Limerick, Ph.D., "The Repression of Indian Religious Freedom," *NARFLega/Review*, Native American Rights Fund, n.d. Bracketed material provided by OTA for clarity.

¹United States Office of Indian Affairs, *Report of the Commissioner of Indian Affairs 1895* (Washington, DC: U.S. Government Printing Office, 1895), p. 229, and *Report of the Commissioner of Indian Affairs 1898* (Washington, DC: U.S. Government Printing Office, 1898), p. 234.

mortality, morbidity, disability, and social problems which extend from youth into adulthood."² Some statistics from this report include the following: 13 percent of students reported carrying guns during the previous 30 days; 51 percent were involved in a physical fight during the previous 12 months; 10 percent were threatened or injured with a weapon on school property during the past 12 months; 43 percent had five or more drinks in a row in one day during the past 30 days; 12 percent reported that they had been pregnant or had impregnated someone; and 29 percent seriously considered attempting suicide during the past 12 months.

Underlying these social problems is frequently a lack of strong cultural identity at the individual, tribal, and pantribal levels. The question of who is an "Indian," "Alaska Native," or "Native Hawaiian" divides Native Americans into separate political groups. The problem stems from the fact that authenticity is not just a matter of blood quantum, but is rooted in the unquantifiable notions of spirituality and cultural or community affiliation. Between 1980 and 1990, the U.S. Census measured a 38-percent increase in the American Indian and Alaska Native population. This large increase has been attributed to two phenomena other than real growth in the Native American popula-

²A total of 5,217 BIA high school students at 45 BIA high schools responded. Charles Geboe, Lana Shaughnessy, and John Reimer, *1994 Health Risk Behaviors of High School Students Attending Bureau of Indian Affairs Schools* (Washington, DC: Bureau of Indian Affairs, Office of Indian Education Programs, 1994).



Top: Eskimo Village of Kotzebue, Alaska, as seen from the air. Located about 600 air miles northwest of Anchorage, the village is inaccessible by land and surrounded on three sides by water that is frozen most of the year. **Bottom:** A single runway serving Kotzebue provides the only year-round access.

tion—mixed-blood Native Americans changing their affiliation to Native American; and non-Native Americans self-identifying themselves as Native American. Perhaps the positive portrayal of Native Americans in the mass media in the last decade is partly responsible for this change. These shifts have brought into sharp focus the lack of consensus on a definition of Native American or a mechanism to determine authenticity of cultural identity. The determination of authenticity is important not only for political and legal determinations of eligibility for entitlements or rights, but also for the protection and development of spiritual and cultural values.

American Indians and Alaska Natives also face major environmental problems on lands that include two-thirds of the nation's uranium deposits, significant deposits of oil and natural gas, and millions of acres of forests.³ Pollution from past industrial and extraction activities and dumping of waste materials persist on several reservations. And some reservations and Alaska Native villages are struggling with sanitation problems.⁴

Many Native communities must cope with a high degree of physical isolation. Most Alaska Native villages are reachable year-round only by air, have limited access by water (during the brief summer), and have no road connections. Many American Indian reservations are in remote rural areas, several hours or more away by car from the nearest small city or metropolitan area. Many Native Hawaiian communities, although accessible by roads, are located in the outlying, more remote areas and islands. Also, inter-island travel between Hawaiian communities is primarily by air,

³Some environmental initiatives include: 1) Niiwin, a coalition of Wisconsin tribes facing off with the Exxon Corp. over a metallic-sulfide mine adjacent to the Mole Lake Reservation; 2) California Indians for Cultural and Environmental Protection, working to stop sewer sludge dumping on rancherias in southern California; 3) Citizen Alert Native American Program, opposing a national radioactive waste repository at Yucca Mountain, a sacred site; 4) Eyak Rain Forest Preservation Fund, protecting land, water, and forests in Alaska's Prince William Sound, the site of the Exxon Valdez disaster; 5) Snoqualmie Falls Reservation Project, defending a sacred site at Snoqualmie Falls from an expanded hydroelectric facility; and 6) Native Action, protecting the sacred Sweet Grass Mountains of Montana where a moratorium on gold mining will soon expire. David Tilsen, electronic mail posted on the aisesnet general list server, Apr. 25, 1995.

⁴For discussion of the geographic, social, and economic settings of remote Alaska Native villages and the problems providing safe water and waste sanitation systems, see U.S. Congress, Office of Technology Assessment, *An Alaskan Challenge: Native Village Sanitation*, OTA-ENV-591 (Washington, DC: U.S. Government Printing Office, May 1994).

as is the case for most travel between Alaska Native villages.

As a consequence of rural isolation, and frequently a lack of jobs on the reservations, Native Americans may make several major moves to and from reservations or rural areas as they balance economic necessity with their desire to maintain family and cultural ties. Thus, although this report primarily addresses the needs of Native Americans who live in rural areas or reservations, the distinction between a “rural” and “urban” Native American will become blurred over time (see box 2-2). Policy designed today to help rural and reservation Native Americans will likely affect urban Native Americans at some later time, and vice versa for policy designed to affect urban Native Americans.

The well-being of Native Americans and their communities is a function of their: 1) cultures and core values; 2) physical, spiritual, and mental health of individuals and families; 3) quality and level of education, health care, and other vital local services; 4) employment prospects and conditions; 5) environmental health; and 6) effectiveness and responsiveness of the tribal, village, or community government leaders and elders.⁵ A strong sense of the interconnectedness and interdependence of these components is central to Native concepts of well-being and cannot be overemphasized. The ability to communicate is critical to maintaining these connections.

In many respects, mainstream society is beginning to recognize and incorporate Native American core values and notions of well-being. Education is now “lifelong learning.” The medical profession has a growing awareness of how envi-

ronment, cultural traditions, and family support contribute to physical and mental health. The very notion of “health” includes feelings of well-being. Some Native beliefs, such as opposition to mining, run counter to the mainstream. Others, such as protecting the environment against pollution, are shared by the mainstream society and are an important public priority.

In reality, often the components of community do not work well together because of political conflicts and tensions, scarce resources, and daunting socioeconomic challenges. Partnerships, joint ventures, and interagency councils are all attempts to create the necessary links for community organizations to share resources and interact to solve problems. In general, federal policies for Native Americans need to consider Native American concepts of culture and community, such as “honoring the earth” and “community interconnectedness.” Successful policies are most likely to result from significant Native American participation.

RENEWING AND STRENGTHENING NATIVE LANGUAGES

Native Americans have a rich oral tradition that continues today. The written form of most Native languages developed after the arrival of European settlers. However, to this day, some Native stories and histories are communicated only orally or pictographically to maintain the tradition. For example, some nations of the Iroquois Confederacy have maintained rituals of storytelling that have never been written down. State and federal policy, after decades of Native language suppression, now recognizes the importance of language re-

⁵ A number of nonprofit organizations provide cultural and community services and resources. See, e.g., Americans for Indian Opportunity (Bernalillo, NM); American Indian College Fund (New York, NY); American Indian Ritual Object Repatriation Foundation (New York, NY); American Indian Resource Council (Oakland, CA); American Indian Science and Engineering Society (Boulder, CO); Association on American Indian Affairs (New York, NY); Honor Our Neighbor's Origins and Rights (Milwaukee, WI); Indigenous Environmental Network (Bemidji, MN); Indigenous Women's Network (Lake Elmo, MN); Institute of American Indian Art (Santa Fe, NM); Native American Council (New York, NY); Native American Rights Fund (Boulder, CO); Native California Network (Bollinas, CA); North American Indian Women's Association (Gaithersburg, MD); Northwest Renewable Resources Center (Seattle, WA); Solidarity Foundation (New York, NY); and United National Indian Tribal Youth (Oklahoma City, OK).

BOX 2-2: Native American Mobility

"At the moment, the question (How are they doing) can just barely be asked of American Indians, in that the information about them is so uncoordinated and fragmented."

"The 1980 census data on the 'demographic, social, and economic characteristics of American Indian tribes' were only released in a Census Bureau publication dated February 7, 1990, a full decade after the last census was finished!"

"At a time when policy makers are beginning to rely on demographic data for decision-making and program planning, it is a disgrace that data on American Indians are so scarce. " ¹

Approximately two-thirds of Native Americans live away from reservations and rural hometowns—many to go to school or work in more urban areas.² This statistic, however, does not indicate the frequency of back and forth movements or the underlying forces at work. Two factors shape this dynamic: a strong need to maintain familial, cultural, and religious ties; and employment opportunities. Office of Technology Assessment staff discussed this topic during numerous interviews and constructed the following representative scenario of Native American mobility.

Many native Americans spend their youth and retirement predominantly in their homelands. Many first leave the reservation to attend a boarding school or college. Others leave to attend a vocational, professional, or graduate school. Still others may first leave to attend a professional conference or meeting. A large number of Native American youth are growing up in urban areas, yet maintain close ties with relatives by visits and participation in religious and cultural activities. Some may even spend the summer months with relatives or friends to learn traditional ways and participate in activities such as farming, hunting, ranching, cooking, and a wide variety of arts including crafts, weaving, and pow-wow dancing. Many adults find employment off the reservation. This could be a few miles or a few hundred miles away from home. Those far away must and do make extraordinary efforts to visit friends and family, visit sacred sites, and participate in religious rites and ceremonies. In retirement years, many may make a final move back to the reservation. Others may move back temporarily or permanently to take care of aging parents.

This picture has two important implications. First, there is not a static division between those who choose to live on or away from reservations and villages, but rather a strong back-and-forth mobility. This means that telecommunications infrastructure on reservations and in rural villages will likely benefit the majority of Native Americans at some point in their lives. Moreover, declining costs and/or enhanced telecommunications such as videoconferencing and computer networking will promote ties and "community" regardless of space and time. Second, the balance between "cultural pull" and "employment push" might be significantly changed by telecommunications applications that spur economic development on reservations. For example, employment in teleservices, electronic commerce, telecommunications companies and Native programming are all opportunities that reservations and rural areas might embrace to increase the number of jobs. On the other hand, these opportunities are already available off the reservations and are motivating new college graduates and other wage-earners to leave the reservations.

¹ Harold L. Hodgkinson, with Janice Hamilton Outtz and Anita M. Obarakpor, *The Demographics of American Indians, One Percent of the People, Fifty Percent of the Diversity* (Washington, DC: Institute for Educational Leadership Inc., Center for Demographic Policy, 1990), pp. iv-1.

² The 1990 census reported that 437,431 American Indians and Alaska Natives (22.3 percent) out of a total of 1,959,234 live on reservations or associated trust lands. Another 200,789 (10.2 percent) live within former reservation areas in Oklahoma, "Tribal Jurisdiction Statistical Areas," where tribes retain certain types of tribal jurisdiction. Another 47,244 (2.4 percent total, or 55 percent of Alaska Natives) live on Alaska's one reservation, the Annette Islands Reserve or in an "Alaska Native Village Statistical Area," which delimits living areas of tribes, bands, clans, groups, villages, communities, or associations. Jack Utter, *American Indians. Answers to Today's Questions* (Lake Ann, MI: National Woodlands Publishing Company, 1993), p. 20.

newal and strengthening—primarily to Native peoples, but also to the mainstream society. Microcomputers and software offer new opportunities to record, teach, and utilize languages, in written, graphic, and oral forms.

Prototypes appear to be successful. For example, microcomputer keyboards, fonts, and operating system software have been adapted for the Native Hawaiian language ‘Olelo Hawai’i (see box 2-3). And students on the Hualapai Reservation in Arizona and the Pine Ridge Reservation in South Dakota are learning their Native languages via multimedia programs that allow them to check their pronunciations with the computer voice.⁶

Software flexibility and new computer programming tools facilitate the development of educational language applications. Multimedia technology, moreover, allows inclusion of audio, video, pictures, and icons to make the application “user-friendly.” The development of standardized hardware and software tools would reduce the cost and increase the availability of applications that help record and teach Native languages. A common and portable technology platform seems essential, given the large number of Native languages (187 in North America by one estimate).⁷

Once Native languages are put into electronic form, they would then be suitable for a variety of other electronic applications. Electronic Native language dictionaries could be prepared and copied via diskette, CD-ROM, or online. The Native languages could be used in Native electronic bulletin boards (e.g., the Leoki Hawaiian language bulletin board), and in Native audio, video, and film material prepared for educational and cultural purposes.

Learning a Native language requires more than classroom instruction; it is reinforced through informal everyday use. The Leoki bulletin board



Top: Honokaa High School located in the rural community of Honokaa, The Big Island, Hawaii. **Bottom:** A Honokaa high school teacher demonstrates use of personal computers for Native Hawaiian language instruction. Computer software offers new opportunities for students to learn Native language and culture.

provides an opportunity for those learning Hawaiian to practice the language by creating an online community of interest that includes Hawaiian speakers locally and around the world. For example, Hawaiian speakers in California now use Leoki to connect with Hawaiian speakers in Hawaii.

⁶A.J.S. Rayl, “New Technologies, Ancient Cultures,” *Omni*, vol. 15, No. 10, August 1993. p. 48.

⁷In North America, 149 out of 187 languages (80percent) are no longer being taught to children. Catherine Gysin, “The Horizon” *Utne Reader*, vol. 57, May/June 1993, pp. 23-24. Leanne Hinton of the University of California at Berkeley estimates that there are between 200 and 250 Native languages in North America and 500 of them are in California. Tino Ramirez, “Hawaiian Language Is Flourishing Via Computers, Internet” *The Honolulu Advertiser*, Feb. 19, 1995, p. A5.

BOX 2-3: Technology for Reestablishing 'Olelo Hawai'i, the Hawaiian Language

*"I am proud to be Hawaiian. I learn hula, we sing Hawaiian songs, and I like to listen to Hawaiian music on the radio. I like to help people and I like being one 'ohana and sharing things with others. I also like to eat Hawaiian food."*¹—Kelsey, age 8

'Olelo Hawai'i became a written language when missionaries arrived in Hawaii in the early 1800s. Until the overthrow of the Hawaiian monarchy in 1893, newspapers flourished and both native Hawaiian and missionary children were bilingual. In 1896, 'Olelo Hawai'i was outlawed, and the language declined until 1978 when the State of Hawaii legally recognized it again. Today, there are Hawaiian language Immersion programs such as the Punana Leo Hawaiian language preschool program (six schools on five Islands), and the Kula Kaiapuni Hawai'i program for elementary school children supported by the Hawaii Department of Education.

The use of computers and telecommunications in Hawaiian schools can greatly reinforce the learning process. Keola Donaghy, an Immersion teacher and computer consultant, modified computer keyboards and software. Working with Hale Kuamo'o, the Hawaiian Language Center at the University of Hawaii at Hilo, Donaghy developed the Leoki electronic bulletin board service (BBS) with an Hawaiian language graphical user interface (GUI). Donaghy has created Hawaiian fonts, translated programs into Hawaiian and is working on translating a computer operating system. The Komike Hua'oleo (Hawaiian lexicon committee) is creating several hundred new Hawaiian words for technology (e.g., modem, hard drive, font, format, left justification, export text, computer monitor, and bulletin board service).

The Leoki BBS has greatly benefited teachers and students alike. It offers electronic mail, public conferences, chat sessions, online references (e.g., English-Hawaiian and Hawaiian-English dictionaries), and online periodicals (e.g., the Hawaiian Language Center publishes a monthly newspaper in Hawaiian). An online voting booth allows polls to be taken on important issues. Teachers can order books, videos, audiotapes, and other learning materials with online forms. Use of Leoki has resulted in tremendous savings in U.S. mail and inter-island phone charges. For now, Leoki is interconnected through the Hawaii FYI network, but in the future it will be an on-ramp to the Internet and a bridge to native Hawaiians on the mainland, as well as students enrolling in Hawaiian language courses in high school, college and adult continuing education classes throughout Hawaii.

¹Joyce Ahuna-Ka'ai'ai (ed.), *He Alo A He Alo Face to Face: Hawaiian Voices on Sovereignty* (Honolulu, HI: American Friends Service Committee, 1993), p. 99.

SOURCE: Office of Technology Assessment, 1995, based on information from Keola Donaghy, "Enehana Kamepiula Technology for a Hawaiian Speaking Generation," *Ties That Bind 1994 Conference Proceedings* (Cupertino, CA: Apple Computer, 1994), pp. 71-80.

Radio and television broadcasting are another way to reinforce Native language learning. For example, tribal radio station KNNB, on the Fort Apache Indian Reservation in Arizona, runs 11-second spots in Apache language instruction.

The Apache tribe is also in the process of developing an Apache-language TV station.⁸

Advocates for the survival of endangered languages can join list servers and online discussions

⁸Ronnie Lupe, "Chairman's Corner," *Fort Apache Scout*, vol. 33, No. 26, Apr. 14, 1995, pp. 2-3.

BOX 2-4: The Internet, the World's Largest Internetwork

An *internetwork* is a computer network of interconnected computer systems and networks that can seamlessly communicate. The Internet is the largest such global internetwork, estimated to have about 48 million users (assuming 10 users per host computer) in more than 146 countries (electronic mail connectivity). The global internetwork has many names such as the "Net," the "Matrix," or "Cyber-space" in February 1995, about 48,000 networks (4.8 million host computers) worldwide made up the Internet. And these numbers are growing very fast.

The Internet began in 1969 with ARPANET, the first wide area network (WAN) that was a project of the U.S. Department of Defense's Advanced Research Projects Agency. ARPANET was a defense prototype to demonstrate uninterrupted communications with packet-switching technology, as might be necessary during wartime. In 1985, the National Science Foundation (NSF) installed a new national backbone (i.e., a high-capacity link between regional networks). For several years, the Internet primarily served the information, computing, and communications needs of scientists and engineers. The first applications were remote use of computers, file transfers, and electronic mail (e-mail).

Since 1985, NSF's open interconnection policy has catalyzed network expansion beyond defense and research networks to include government, education, and commercial networks, and beyond the United States to include the whole world. This expansion was fostered by an established transmission protocol, the Internet Protocol (IP), that all new entrants agreed to use (85 countries now have full IP backbone connectivity). Today, there are many IP internetworks in addition to those that comprise the Internet.

Altogether there are thousands of individual applications running on the Internet, but the top 10 comprise about 97 percent of the traffic. Some of the most-used applications, in terms of percent of total bytes of traffic in February 1995 on the NSF backbone, are the Gopher search application (2.6 percent), telnet remote computer use (3.2 percent), smtp electronic mail (5 percent), netnews news service (9 percent), World Wide Web browser (20 percent), and FTP file transfers (27 percent).¹

In the future, even more growth is expected, most of it from new commercial traffic. Business applications such as electronic data interchange and electronic cash are newly available, and electronic commerce pilot projects—such as CommerceNet in California's "Silicon Valley"—are in the works. This change in orientation from research to commerce will present new challenges, but has the potential to turn the Internet into the nation's premier economic resource, serving government, academia, and industry.

¹Information from the National Science Foundation FTP file server, <ftp://nls.sf.net/statistics/nsfnet/1995/n5f-9502.highlights>.

SOURCE: Office of Technology Assessment, 1995.

on the Internet (see box 2-4).⁹ Large commercial subscription networks and smaller electronic bulletin board services also provide forums for online discussions of Native languages.

The challenge of renewing Native languages should not be underestimated. An entire genera-

tion has grown up not speaking their traditional languages. Many elders are now trying to revive their languages by teaching their grandchildren or going into the schools to speak with language students. Most believe that language and lore can only be taught in person where facial expressions,

⁹For example, the Australian National University maintains an Internet list server (an electronic forum whereby electronic mail is distributed to all subscribers to the "list") on endangered languages. To subscribe, send electronic mail to majordomo@coombs.anu.edu.au. In the body of the message, type "subscribe Endangered-Languages-L <your e-mail address>."

gestures, and tones are conveyed in personal settings. The elders are in the best position to teach and pass on language and traditional cultures. If elders are encouraged and assisted in the use of the technology to record the language and work with software developers, the resulting language and culture applications will greatly benefit from their knowledge and wisdom. Without the guidance of elders on technology use for Native cultural purposes, students will be primarily exposed to, and will likely adopt, the language and culture of the mainstream.

PROTECTING SACRED SITES AND OBJECTS

Native Americans accord great importance and reverence to sacred land sites and objects, and instruments for religious, ceremonial, and burial purposes.¹⁰ Federal policy recognizes the importance of these sites and objects, and requires agencies to be sensitive to the effects of federal programs and activities on Native American religious beliefs and practices. For example, federal law requires federal agencies and federally funded institutions (approximately 5,000) to compile inventories of burial remains—Native American skeletons, funerary and sacred objects, and other items of cultural importance—and to repatriate these items when requested by the tribe or village of origin, in accordance with the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA).¹¹ Increasingly, these groups are required to consult with Native leaders as part of their scientific research (e.g., for permits to study collections or to pass completed studies to tribal councils for prepublication review) or for land-use planning to ensure that Native religious and cultural values are considered and sacred sites and objects protected.

Computer information systems with electronic databases are ideally suited for keeping track of information on millions of artifacts and sacred sites through initial inventories and continuing updates from Native groups, scientists, and land managers. The description and location of sensitive sites could be included in geographic information systems maintained directly by tribes and other Native groups, or by relevant federal agencies (tribal access and integrity would need to be ensured). Electronic inventories and timely information could be distributed to Native leaders using computer networking. For example, the National Park Service announces NAGPRA review committee meetings on the Internet and maintains the National Archeological Database (see box 2-5).

Privacy is a concern, however, because some sacred sites may be so sensitive that widespread public knowledge could compromise their sanctity. Native groups would need to be involved from the outset to ensure appropriate inventory (and site) security and privacy. In some cases, sensitivity may be so high that online dissemination would be too risky. The pace of reclamation and repatriation is also a concern; many tribes do not have the resources to handle and store large numbers of artifacts. Computer networking has accelerated the rate of activity—meetings, conferences, rules-making, and decisionmaking—of many concerned parties, while leaving others (notably non-networked Native Americans) uninformed and without reasonable opportunities to participate.

Videoconferencing could be used to facilitate Native consultations with federal land managers. Tribes and villages are frequently located in remote areas that are far from the federal regional headquarters offices, making travel to meetings

¹⁰ See Todd Wilkinson, "Ancestral Lands," *National Parks*, vol. 67, No. 7-8, July 1993, pp. 30-35.

¹¹ See Virginia Morell, "An Anthropological Culture Shift," *Science*, vol. 264, April 1994, pp. 20-22; Ellen K. Coughlin, "Returning Indian Remains," *Chronicle of Higher Education*, vol. 40, No. 28, Mar. 16, 1994, pp. A8-A9, A16; and June Camille Bush Raines, "One Is Missing: Native American Graves Protection and Repatriation Act: An Overview and Analysis," *American Indian Law Review*, vol. 17, No. 2, 1992, pp. 639-664. To subscribe to an electronic forum on NAGPRA, send the message "subscribe nagpra-l" to majordomo@world.std.com.

BOX 2-5: The Online National Archeological Database

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 is the latest legislation in a series of laws that protect Native American archeological artifacts, culture, and/or religious freedom, including the American Antiquities Act of 1906, National Historic Preservation Act of 1966, American Indian Religious Freedom Act (AIRFA) of 1978, the Archeological Resources Protection Act of 1979, and the National Museum of the American Indian Act (NMAIA) of 1989.¹ Another bill, the Native American Cultural Protection and Free Exercise of Religion Act, was considered in 1994, but was not enacted.

NAGPRA has created a great need for computer information services and databases. Museums must inventory collections and notify tribes (including Alaskan and Hawaiian villages). And tribes are being swamped with paper inventories sent to them from hundreds of museums. The Department of the Interior's National Park Service, with funds authorized by Congress, created the online National Archeological Database (NADB) to gather, as well as disseminate, information related to preserving America's archeological heritage. NADB assists the implementation of NAGPRA policy with a special NAGPRA module.

NADB also features a reports module with 100,000 citations of archeological investigations, a permits module with federal excavation permits issued before 1984, and mapping capabilities at the state and local levels. The Park Service works in partnership with federal, state, local, and tribal government agencies, professional societies, and educational and scientific organizations to keep NADB records up to date. The reports module is updated with help from state historic preservation officers, state archaeologists, and the Department of Defense. The permits module is updated with help from the Smithsonian's National Anthropological Archives.

The NAGPRA module features guidance on implementing NAGPRA. It provides the full text of NAGPRA as well as regulations. It identifies contacts for Indian tribes and federal agencies and reports on activities and meetings, including the NAGPRA review committee.

The NADB-Reports and NADB-NAGPRA databases are now available via modem, remote login, or Internet. The U.S. Army Corps of Engineers can access NADB through its automated network, CEAP.

¹For a detailed discussion of federal legislation and regulations, including how cultural resources management and tribal religious values can be integrated into the review process established by the National Environmental Policy Act of 1969 (NEPA), see Dean B Suagee, "American Indian Religious Freedom and Cultural Resources Management Protecting Mother Earth's Caretakers," *American Indian Law Review*, vol. 10, No 1, 1983, pp. 1-58

SOURCE: Office of Technology Assessment, 1995, based on information from the U.S. Department of the Interior, National Park Service, Archeological Assistance Division, "NADB Access" (pamphlet), Washington, DC, 1994

and hearings difficult or impossible. While face-to-face interaction may be preferable, the electronic equivalent may be a more effective substitute than telephone or mail.

RECORDING, DEVELOPING, AND SHARING NATIVE CULTURES

Computer and communication technologies are revolutionizing the ability of Native Americans to

record, develop, and share cultural resources. Native activities, traditions, sites, and sounds can be stored on videotape, videodisc, and CD-ROM; transmitted by radiowaves, copper telephone lines, and fiberoptic cables; and broadcast/displayed by radio, TV, or computer monitor. New electronic works of art that reflect and inspire Native cultures are possible in multimedia formats. When digitized, these electronic materials can be

transmitted over any distance without loss of quality or integrity—for example, within a single tribe or local community, among several tribes or villages across the country, or across regional or national networks of institutions and communication outlets that reach Native Americans. Also, unlike a phonograph record or analog audiotape, CD-ROMs do not wear out. However, like records and record-players, CD-ROMs and CD-ROM players may become obsolete over time, replaced with cheaper, higher capacity, or smaller versions. Nevertheless, these advanced technologies—for recording, developing, and sharing—help bring together the emerging Native American cultural infrastructure.

Native leaders, elders, historians, artists, filmmakers, composers, storytellers, and advocates feel a strong need to maintain and develop Native cultures, and increasingly understand the potential of telecommunications technologies. Provision for Native programming must accompany new wires and conduits. Native-language, Native-produced, and Native-relevant programming is an effective response to the onslaught of mass media that Native activists and scholars decry as a key contributor to cultural erosion. New technologies for Native programming include video camcorders, digital audiotape recorders, and a multitude of software applications for everything from desktop publishing to computer animation.

Because many of these technologies are designed for personal use, home-grown productions are proliferating. For example, students and professors at the Oglala Lakota College on the Pine Ridge Reservation in South Dakota are “creating

CD-ROMs on everything from the Bigfoot Massacre in 1890 to the Wounded Knee Uprising in 1973 . . . [and] in Window Rock, Arizona, the Navajo tribe is creating a CD-ROM on their traditional world view.”¹²

Recently, the Ojibwe K-9 schools on the White Earth Reservation in Minnesota started using a Native-made CD-ROM entitled “Culture and History of the White Earth Ojibwe.” This CD-ROM, the result of a two-year effort to record oral histories and scan historical documents and photographs, was supported by a \$50,000 grant from the Blandon Foundation. Before it was created, “teachers had little information about the tribe—most couldn’t even pronounce Ojibwe words [and] students had little understanding of the culture and heritage that shaped their ancestors’ lives.”¹³

The number of advocacy and Native media arts centers that train or support Native programming is small. There is only one national training center, the Indigenous Broadcast Center, for Native Americans in public radio broadcasting. Other groups include the Indigenous Communications Association, Native American Public Broadcasting Consortium, Institute of American Indian Arts, Native American Producers Alliance, Aboriginal Film and Video Artists Alliance, and Pacific Islanders in Communications. Given the cultural imperative and limited monetary support, these centers have learned to “do more with less.” Because of the broadcast nature of media arts and the ability to easily share digitized multimedia, support for Native programming will help to maintain, develop, and share Native cultures. As noted by Native filmmaker Loretta Todd, one of

¹²Rayl, op. cit., footnote 6, p. 48.

¹³Peggy Healy Stearns, “History Comes Alive: A School District Creates Its Own CD-ROM on Local Native American Culture,” *Electronic Learning*, vol. 13, No. 2, October 1993, pp. 8-9.



Left: Cultural Center of the Oneida Nation, New York. The Center houses Native art galleries, educational facilities, and a gift shop for visitors and tourists. Right: An Oneida Nation computer specialist demonstrates the first home page implemented by an Indian tribe. The home page provides information on the history and culture of the Oneida Nation. The Oneida Nation believes that making cultural information available to other tribes and the general public through the Internet will help promote the rebirth and understanding of the Oneida culture. The home page is accessible via the Oneida World Wide Web site (see appendix B for details).

the key concerns of Native filmmakers “is the need to heal our community. . . the practical side to this means getting access to equipment, to broadcasting opportunities.”¹⁴

Current efforts to train new Native programmers appear to be innovative and high in quality. For example, the Indigenous Broadcast Center, a project of Alaska Public Radio Network, was recently awarded grants from the National Alliance for Media Arts and Culture (NAMAC) in Oakland, California, and the National Endowment for the Arts (NEA).¹⁵ The NEA grant will create partnerships between Native radio producers and artists to produce feature-length radio arts pieces. The NAMAC grant will be used to conduct the fourth annual award-winning Alaska Native Youth Media Institute, an intensive eight-day residential hands-on workshop led by Alaska’s top media professionals in radio, video, and journalism.

About 120 tribal and village museums or cultural centers focus on the history and culture of individual Native groups.¹⁶ Few use electronic technology today, but tribal cultural centers could be future users of electronic cultural materials. Several commercial CD-ROMs on Native Americans are available for tribes that lack the resources to create their own.¹⁷ Exposure to multimedia CD-ROMs could stimulate greater local interest in producing materials.

Telecommunications technology could benefit local schools and community colleges that serve areas with high concentrations of Native Americans. Many such schools and colleges already make at least some use of instructional technology (including educational software, film, video, and/or distance-learning videoconferencing), and thus seem to be good candidates for new electronic materials as part of history, culture, and language courses. For example, the Red Lake Elementary

¹⁴Sally Berger, “American Indians: The Films of a Native Daughter,” *Interview*, vol. 23, No. 4, April 1993, p. 113.

¹⁵“IBC Receives Specialized Training and Institute Grants,” *Tundra Times*, vol. 34, No. 5, Jan. 18, 1995, p. 5.

¹⁶Morell, *op. cit.*, footnote 11, p. 22.

¹⁷For example, “The American Indian: A Multimedia Encyclopedia” is available for \$295 from Facts on File, a company based in New York City. Vicki Wood, “Reflections on History: The American Indian,” *Electronic Learning*, vol. 13, No. 2, October 1993, p. 35.

and High Schools in Minnesota received an award from the INFORMS (Internet for Minnesota Schools) program to establish a reservation-to-reservation Internet “key pal” program.¹⁸ The students will be encouraged to learn language arts, geography, Ojibwe culture, and computer technology. They will develop a database of American Indian schools, along with their Internet addresses, which will be made accessible on the INFORMS Gopher and World Wide Web servers.

Technology could, likewise, assist libraries and information centers that serve Native American communities, whether stand-alone or collocated with another institution such as a school or service center. Although historically paper-based, libraries are now accustomed to providing information using various media. They would likely be ready users of new electronic cultural materials, assuming, as with schools, that training and resource issues could be resolved. Many libraries now maintain record, tape, video, and software collections, as well as CD-ROM database systems and computer networks.

In a recent project, NYSERNet, Inc., with financial and equipment grants from the J.M. Kaplan Foundation and Apple Computer, connected five rural libraries and the Onondaga Indian Nation in New York to the Internet.¹⁹ The premise of the project was “that the public library can serve as the intermediary, or ‘linking agent,’ between the rural population and the evolving network of electronic information.”²⁰ Critical to the success of the project was personalized support for participants. The barriers included high long-distance telephone charges, limited access to points-of-presence, and lack of awareness in the broader community. These libraries were not specifically

involved in building a new library-wide information system, but the project did demonstrate successful use of resources on the Internet, considered to be the largest virtual library in the world.

In another application, Apple Computer sponsored Project Jukebox through its Apple Library of Tomorrow grant program.²¹ The goal of Project Jukebox was to record oral histories. The project team encountered a common dilemma—to make the audio recordings widely available while protecting the rights of the interviewees. Users of Project Jukebox are now required to acknowledge that they have read the release agreement before proceeding (see box 2-6). A scaled-down database will be provided to the National Park Service, presumably for use by tourists in national parks. The database will also be archived using digital audiotape and, in time, will be available on CD-ROM.

No one is certain what the library of the future will look like, or what role it will play in the emerging National Information Infrastructure (see box 2-7). Tribal libraries may want to maintain electronic databases pertaining specifically to Native American issues, or even to specialize in one area such as Indian law. They may choose a dominant role in cultural protection, support of self-governance, or public outreach. In partnerships, libraries could avoid duplication of effort by sharing their electronic databases through an intertribal library computer network. Libraries might also consider becoming community information and communication centers, especially in remote and economically depressed areas that lack adequate access to residential telephones.

Native newspapers and newsletters could be strengthened through use of telecommunications

¹⁸Posting on the MINN-IND (Minnesota Indian) list server, Mar. 4, 1995. To subscribe to MINN-IND, send an e-mail request to dborn@maroon.tc.umn.edu.


¹⁹Charles R. McClure, Waldo C. Babcock, Karen A. Nelson, et al., *The Project GAIN Report: Connecting Rural Public Libraries to the Internet*, project evaluation report prepared for NYSERNet, Inc., Feb. 15, 1994 (Manlius, NY: Information Management Consultant Services, Inc., 1994).

²⁰Ibid. p. 1.

²¹Project Jukebox was a project of the Elmer R.asmuson Library at the University of Alaska Fairbanks campus. An early description with preliminary results is described in Steve Cisler (ed.), *Apple Library of Tomorrow 1990 to 1992* (Cupertino, CA: Apple Library, 1993).

BOX 2-6: Protection of Culturally Sensitive Information: Project Jukebox

Without clicking on the acknowledge button "I have read the release agreement," a user of Project Jukebox (sample screen shown here) cannot listen to audio recordings of culturally sensitive oral histories, or view and print photos and text from the transcript. The release agreement holds a user liable for any subsequent misuse of the information.

Audio Cards	
<div style="border: 1px solid black; padding: 5px; text-align: center;"> I have read the release agreement. </div>	
<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Project Jukebox</p>  </div>	<div style="border: 1px solid black; padding: 5px;"> <p>University of Alaska Fairbanks The Elmer E. Rasmuson Library Fairbanks, Alaska 99775-1005</p> <p>Oral History Gift and Release Agreement</p> <p>I, Howard Luke, of Chena Camp grant, convey, and transfer to the University of Alaska Archives and Manuscript Collections, an educational institution, all my right, title, interest, and literary property rights in and to the interviews with me recorded on</p> </div>

SOURCE: Office of Technology Assessment, 1995, based on material in Steve Cisler (ed.), *Apple Library of Tomorrow 1990 to 1992* (Cupertino, CA: Apple Library, 1993), p 8

technology. About 300 newspapers and newsletters, mostly small and very-low-budget, cover Native cultural events, issues, and artists, and could benefit from intertribal electronic distribution of news and easy, affordable electronic access to cultural materials. Radio and TV stations (including cable TV) also can use satellite links to receive and send Native programming, and thus better serve Native communities. A leading example is the American Indian Radio on Satellite (AIROS) project designed to increase Native programming

on the 26 tribal radio stations. It is co-sponsored by the Native American Public Broadcasting Consortium and Indigenous Communications Association, with Corporation for Public Broadcasting funding.

In sum, electronic technologies can strengthen the ability of Native artists, filmmakers, storytellers, and historians to produce cultural materials, and make it easier for cultural institutions serving Native Americans (e.g., museums, schools, li-

BOX 2-7: Information Technologies and Tribal Libraries

in Indian America we have two major information problems; others have little accurate information about us from our perspective, and we have poor access to reformation from others which could benefit us. “-James May (Cherokee)

The U S National Commission on Libraries and Information Science (NCLIS) conducted an extensive three-year study on challenges critical to the development of tribal libraries and information services for native Americans.¹ More than 130 tribes and villages participated in hearings, site visits, and surveys. The study addressed issues such as the role of new information technologies, the special problems of cultural and language preservation as oral traditions erode; and the role of libraries in all areas of Native life, especially to provide access to tools, technologies, literacy and basic job skills training, and resources to successfully enter the Information Age.

Two of 10 challenges identified by the Commission are to develop museum and archive technologies and to encourage application of newer information network technologies. Ironically, tribal libraries are trying to preserve cultural traditions and wisdom of the past while forging new paths into the future. The Commission found that “with a few exceptions Indian reservations are deplorably bereft of the equipment, expertise, and knowledge necessary to employ the new library and information technologies ...”² Strategies put forth to address this problem included

- acquiring digital computing and telecommunications technology,
- training native American librarians, possibly through distance-learning activities with state library agencies and graduate schools, and
- establishing intertribal networking, resource-sharing, and the development of special databases

The Commission specifically recommended “that consideration should be given to a legislative initiative to establish a National Native American Electronic Network enabling the tribes and villages to communicate, cooperate, and share information services and materials rapidly. The Network should be designed to address the multiplicity of special library and information needs of Native Americans and have the capability to interface with other national library and reformation networks and databases.”³

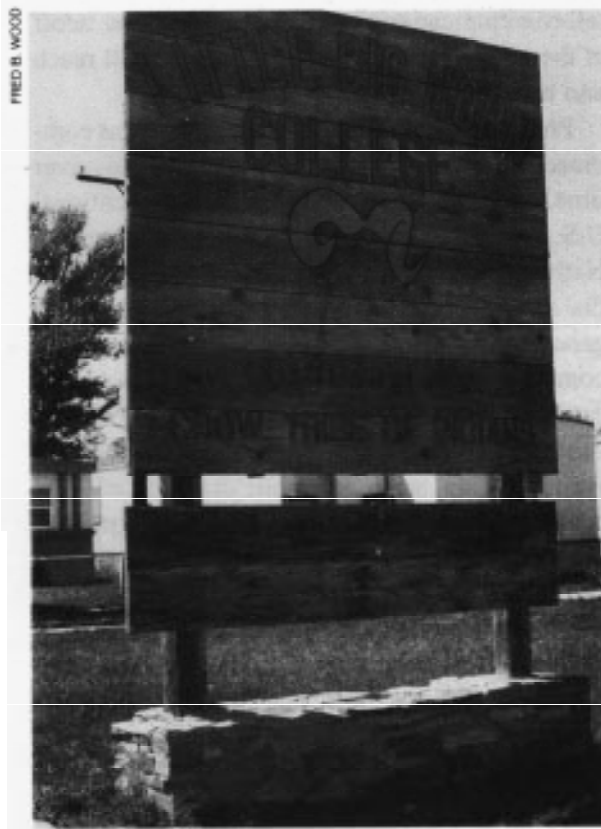
Tribal, state, and federal policy makers can learn from initiatives such as Alaska’s Statewide Library Electronic Doorway (SLED). SLED is providing Internet access to every public library in Alaska. Moreover, SLED computer servers will provide electronic databases such as library and government reference materials. As remarked by Steve Smith, one of the creators of SLED, libraries do not want to become “custodians of book warehouses.”⁴ This feeling is shared by Native Americans in the wake of the federal policy of self-determination; tribes are finding that the tribal library is assuming increasingly important roles as both an archive and an up-to-date information source for culture, education, business, law, governance and tribal policy.

¹ U S National Commission on Libraries and Information Science, *Pathways to Excellence: A Report on Improving Library and Information Services for Native American Peoples* (Washington, DC: December 1992).

² Ibid, p. 20.

³ Ibid, p. 14.

⁴ Lee Dye, “Alaskans To Use SLED on Information Highway,” *Los Angeles Times*, July 5, 1994, p. 5.



Left: Little Big Horn College at the Crow Indian Reservation, in Crow Agency Montana. Tribal colleges typically provide library and information services as well as education for the local Indian community Right: The library at the Little Big Horn College is full of books, periodicals, and electronic media-including the CD-ROM station shown here.

braries, the media) to reach more people more effectively. Native museums can use computer networking and videoconferencing, for example, both to improve communication and collaboration among themselves, and to form partnerships with schools, libraries, and radio stations. The portability of electronic cultural materials, whether on diskette or CD-ROM or transmitted online, increases their potential reach, not only to Native Americans living on or near Native communities, but to those who live in the major metropolitan areas.

Two major caveats are in order. First, most Native communities are short on technical expertise and financial resources. Local schools, museums, and libraries will need training, technical support, and funding for equipment and telecommunica-

tions access, as well as local leadership, if the potential is to be realized. Second, some Native cultural material may be sensitive and not suitable for electronic dissemination, such as certain religious rites or ceremonies. Many songs and dances are tied to spirituality. Their sanctity derives from the real-life performance within a defined context such as at a sacred site or with certain spiritual leaders. When taken out of context (displayed on a computer terminal, for example), or if altered (by using computer software), sacred songs and dances could be considered disrespectful or irreverent. Policies for defining and protecting Native cultural privacy and integrity in an electronic environment need to be established by the Native tribes, villages, and communities that are the original source of the cultural material.

BROADENING PUBLIC AWARENESS OF NATIVE CULTURES

Several national or regional museums specialize, or have a major subfocus, on Native cultures. These include the Smithsonian Institution's National Museum of the American Indian²² (NMAI) in Washington, DC and New York City; Heard Museum in Phoenix; Southwest Museum in Los Angeles; and Bishop Museum in Honolulu. The museum administrators and curators are beginning to visualize electronic technologies as an important complement to the traditional means of conveying culture and an effective way to extend access to museum displays, exhibits, and programs far beyond the physical structures.

The NMAI is in the beginning stages of creating the Fourth Museum (so-called because it is the fourth of four planned NMAI facilities). The Fourth Museum is considering prerecorded audiotapes and videotapes, videoconferencing, computer networking, electronic databases, and interactive multimedia to disseminate Native programming and to put the museum's collections and cultural programs online. A secondary goal is to raise public awareness of the status of the other three NMAI facilities. Currently, an exhibit is open at the U.S. Customs House in downtown New York City. A Cultural Resource Center in Maryland is scheduled to be completed in 1997, and a Mall Museum near the National Air and Space Museum is scheduled for completion in 2001. Some skeptics, pointing to a lack of basic

telecommunications on many reservations, scoff at the notion that the Fourth Museum will reach and benefit many Native Americans.

Programs produced by Native Americans combined with new electronic outlets could, over time, provide a better balance to the conventional U.S. textbook, film, and news media treatment of Native American cultures and history.²³ Past media coverage, especially of American history, is generally regarded as having been seriously incomplete and inaccurate (although some note a recently improving trend). New technologies and declining costs present opportunities for Native Americans to originate more material of high quality, accuracy, and authenticity and to distribute that material locally and nationally.²⁴ American Indian TV is but one example of local Native programming (see box 2-8). Although such programming has rarely been distributed by mass media outlets, this may be changing as evidenced by shifting viewer preferences²⁵ and a new Native American radio talk show.²⁶ As a consequence, the major production companies, media outlets, and cultural institutions may take more notice.

Technology-based cultural awareness opportunities include the use of Native electronic cultural materials (especially software, videos, and films) to support U.S. history and culture courses at the K-12 and college levels, in public libraries, and in areas of the country that do not have significant concentrations of Native Americans. Also, Native-produced audio programming could be

²² The NMAI was established by the National Museum of the American Indian Act, Public Law 101-185, Nov. 28, 1989.

²³ See, e.g., Robert F. Berkhofer, Jr., *The White Man's Indian: Images of the American Indian from Columbus to the Present* (New York, NY: Alfred A. Knopf, Inc., 1978).

²⁴ One catalog indexes and describes more than 175 Native American programs produced for public television and available on videotape to public television stations, schools, libraries, and educational users. Native American Public Broadcasting Consortium, *Catalog of Programming 1993-94* (Lincoln, NE: 1994).

²⁵ In 1993, cable entrepreneur Ted Turner launched a year-long series of shows about Native Americans, including several movies, a six-hour documentary series, and a 20-part series of reports. Richard Zoglin, "Ted Turner Goes Native," *Time*, vol. 142, No. 24, Dec. 6, 1993, pp. 86-87.

²⁶ Native America Calling, coproduced by the Native American Public Broadcasting Consortium and the Alaska Public Radio Network, will be the first nationally distributed, live call-in radio talk show. It will be distributed by the AIROS satellite network and is scheduled to premiere in June 1995.

played on commercial and public radio stations in the major media markets. And Native-produced video programming could be used on cable and public television stations. Cable is well suited because of the large number of channels, including public and educational access channels, offered in the medium to large markets.

Interactive multimedia centers, or kiosks, have a significant future role. A Native American interactive multimedia center or room could be added at museums that do not otherwise have a significant Native American exhibition or collection. A Native American interactive interpretative kiosk might be tried at selected national parks, monuments, historic sites, and perhaps other federal (and state) locations that have Native cultural or historic significance. These kiosks could use Native-produced multimedia and videos.

Computer networking is now being used by Native Americans, researchers, and the general public to discuss Native cultural topics and issues. Electronic mail, electronic “chat” sessions or conferences, electronic bulletin boards, and the electronic distribution of Native cultural materials and programming are all in use. Native American discussion groups are included on the major commercial and public computer conferencing networks. The several Native American electronic bulletin boards and electronic information offerings should soon be referenced in federal and library directories. About 75 electronic bulletin boards are Native American owned/operated and pertain to Native American issues (see appendix A for a partial listing).

A current threat to the promotion and development of Native American culture, spirituality, and values on computer networks is ethnic fraud—non-Native Americans posing as elders, shamans, medicine men/women, and the like. Although these imposters are eventually discovered, they frequently perpetrate cultural libel—putting forth

misinformation on sensitive cultural ideas and values—for many months and then can easily reappear under a new online name. Today, there is no effective legal recourse for libel in public forums on computer networks. Some public computer network forums may have to be regulated and/or mediated to better protect and serve the cultural interests of Native Americans. One could envision three classes of computer discussions—private, regulated/mediated, and public—to serve the different needs of Native Americans, including privacy, protection against fraud, and free speech (this is also true for the majority society).

DEVELOPING A NATIVE CULTURAL EMPOWERMENT STRATEGY

The Native American community faces a dilemma. On the one hand, several key trends are coming together to present new opportunities for Native American cultural empowerment: 1) the shift in federal policy that now encourages the reaffirmation and strengthening of Native culture rather than its repression, 2) the resurgence in grassroots Native interest in cultural history and activities, and 3) the considerable potential of telecommunications. On the other hand, developing overall strategies is difficult, in part because of the cultural diversity of Native Americans and the fragmentation of activities and funding sources. The absence of an overall strategy becomes more critical, however, in times of fiscal austerity.

The basis for cultural empowerment might include cultural property rights and legal protections, such as those provided by NAGPRA and the Indian Arts and Crafts Act (IACA) of 1990,²⁷ and emerging Native policies for copyright, security, and privacy of Native information. The IACA is intended to promote commerce and reduce counterfeiting and deceptive marketing practices by imposing large penalties—up to \$250,000 and five years of incarceration for a first offense—to

²⁷ An online open forum for discussion of Indian law and policy is the “triballaw” list server. To subscribe, send an e-mail message to LIST-SERV@thecity.sfsu.edu. In the body of the message, type the following: subscribe triballaw <yourname>.

BOX 2-8: American Indian TV: Native Programming on a Shoestring

"I am here for a purpose, and that purpose is to continue on to be my grandmother's messenger, to disseminate pieces of our culture. That is what my grandmother told me to do. She would often tell me, 'Please let the greater world outside know what is going on here-of who we are and where we come from. . .'"---Ray Young Bear (Mesquakie)

American Indian TV (AITV) is a monthly half-hour program distributed in southern California to about 2.25 million cable subscribers, including about 100,000 Native Americans in the metropolitan Los Angeles area. The program goals are to dispel myths and negative images about Indians by showcasing Indians in contemporary settings—Indian rappers, opera singers, attorneys, surgeons, ballet dancers, and skateboard champions—and to build Indian community and outreach. The program is largely the effort of one man, Don Thornton (Cherokee), who may spend as much as 80 hours a week for the "sheer joy of producing a show he believes in."

The program began as a simple community access health show funded by a grant from the Indian Health Service. The American Indian Clinic provides a small production studio. AITV is currently searching for ways to expand to a broadcast UHF or VHF channel and to produce the show weekly. To date, AITV has archived 90 hours of programming for a year and a half of work, and has traveled to a dozen states. A monthly newsletter with a calendar of events and viewing times currently reaches 2,000 homes,

Using an upbeat format, the program highlights community issues and promotes Indian performers, leaders, role models, and organizations. It has featured national Indian leaders such as Wilma Mankiller, Chief of the Cherokee Nation; Oren Lyons, Chief of the Onondaga Nation, and Senator Ben Nighthorse Campbell of Colorado. The program also features Indian entertainers such as Wes Studi, Floyd "Red Crow" Westerman, and Gary Farmer. Despite a shoestring budget, AITV has managed to line up non-Indian celebrities such as Arnold Schwarzenegger, Steven Seagal, Jay Leno, Robert Duvall, and Paul McCartney in connection with Indian-specific events and issues. In a humorous way, each show awards a dubious honor to those who have gone out of their way to offend the Indian community—the "Custer-Had-It-Coming-Award!"

SOURCE: Office of Technology Assessment, 1995, based on information from materials provided by Don Thornton, producer, AITV April 1995

¹David Moore and Michael Wilson, "Staying Afloat in a Chaotic World A Conversation with Ray Young Bear," *Callaloo*, vol. 17, No. 1, winter 1994, pp. 205-208.

those who knowingly violate the prohibition.²⁸ Protection and enforcement of such policies are difficult for online information, however, and some Native Americans may choose not to put sensitive cultural material into electronic formats.

Cultural empowerment might also include policies that encourage the identification and

strengthening of bonds with blood relatives. Information systems that trace genealogies can help individuals to verify ancestry, establish tribal or Alaska village membership, strengthen knowledge of their cultural roots, identify relatives, and/or create or renew feelings of belonging and purpose. Policies for the development and use of

²⁸For further discussion, see Jack Utter, *American Indians: Answers to Today's Questions* (Lake Ann, MI: National woodlands Publishing Company, 1993), pp. 81-82.

genealogical information systems might include decisions on which records could be put into electronic form, and on controlled access to records to ensure the appropriate amount of confidentiality and privacy.

In Hawaii, an interagency task force comprised of representatives from the Department of Health, the State Archives, the Office of Hawaiian Affairs, and the Department of Hawaiian Home Lands addressed the issue of Hawaiian genealogy.²⁹ It discovered a large demand for genealogical services and developed a plan for the Hawaiian Genealogy Project with input from interested individuals and organizations. The plan made recommendations for legislation as well as administration and funding. The project will include the online Hawaii Population Database (developed by the Genetics Department of the University of Hawaii), which contains primary records (birth, death, and marriage) collected from 1841 to the present, and secondary records such as the 1900 and 1910 Federal Census files. Other potential secondary sources include documents at the State Archives, libraries, courts, and the Bishop Museum. The task force recommended that information and assistance be centralized at one-stop centers located on Kauai, Oahu, Molokai, Maui, and Hawaii, and that electronic information be shared through telecommunications linkages. The project was to have been fully functional by 1995, but is less than one-quarter complete due to a lack of funding.

The federal role in recent years has been to support Native language³⁰ renewal and cultural development. Financial support, however, is modest and spread among several federal agencies and programs. These include, for example, the Ad-



Top: In Alaska, most colleges serving Native communities are part of the University of Alaska system. Chukchi College serves Kotzebue and other Eskimo villages in remote north-west Alaska. The Kotzebue public library is collocated with Chukchi College. **Bottom:** The Kotzebue public library has a small collection of books and periodicals along with a CD-ROM station and online computer terminal that are available to the local community

ministration for Native Americans* in the Department of Health and Human Services, Bureau of Indian Affairs (Department of the Interior), National Park Service (Department of the Interior),

²⁹Hawaiian Genealogy Project Master Plan (Honolulu, HI: State of Hawaii Interagency Task Force, 1991).

³⁰On October 30, 1990, the Native American Languages Act, Title I of Public Law 101-477, declared federal policy "to preserve, protect, and promote the rights and freedoms of Native Americans to use, practice and develop Native American languages," as cited in Utter, op. cit., footnote 28, p. 84.

³¹"On Oct. 26, 1992, President Bush signed into law a legislative measure that will help counter the loss of Native languages. It authorizes the Administration formative Americans to make grants to tribal governments and other groups to teach children, train educators and interpreters, and compile histories, develop teaching materials, and acquire equipment for language lessons" (Indian Country Today, Nov. 5, 1992), as cited in Utter, op. cit., footnote 28, p. 83.

Department of Education (various programs), National Museum of the American Indian (The Smithsonian Institution), National Endowment for the Arts, and Corporation for Public Broadcasting. Total funding appears to be a few million dollars per year (excluding the NMAI construction costs), of which a significant part supports telecommunications-related activities.

Because Native cultural programs are spread among several agencies and lack an overarching strategic plan or concept, an unintended consequence of overall federal budget cuts could be to effectively dismantle some or all of these initiatives. The Administration for Native Americans had concluded, in 1994, that Native cultural activities were underfunded.³² Budget increases appear impractical in today's fiscal environment. But some Native leaders and cultural activists are urging consideration of new ways to preserve current funding or forestall disproportionate cuts. Advocates believe that, while Native culture is the

primary responsibility of each individual tribe, village, and community, the federal trust responsibility appropriately extends to providing some modicum of financial support—especially in light of many decades of federal efforts to undermine Native cultures.

National tribal leaders, together with American Indian, Alaska Native, and Native Hawaiian cultural leaders, could work with a designated federal agency, perhaps the Administration for Native Americans, to inventory and disseminate online all current federal programs for Native American cultural activities, and develop both funding and administrative options. Moreover, they could work on further developing policy on cultural property rights. The result could be an overall strategy that would focus attention on Native American cultural empowerment and coordinate efforts to make best use of scarce financial resources.

³² Administration for Native Americans officials, personal communication, Nov. 18, 1994.