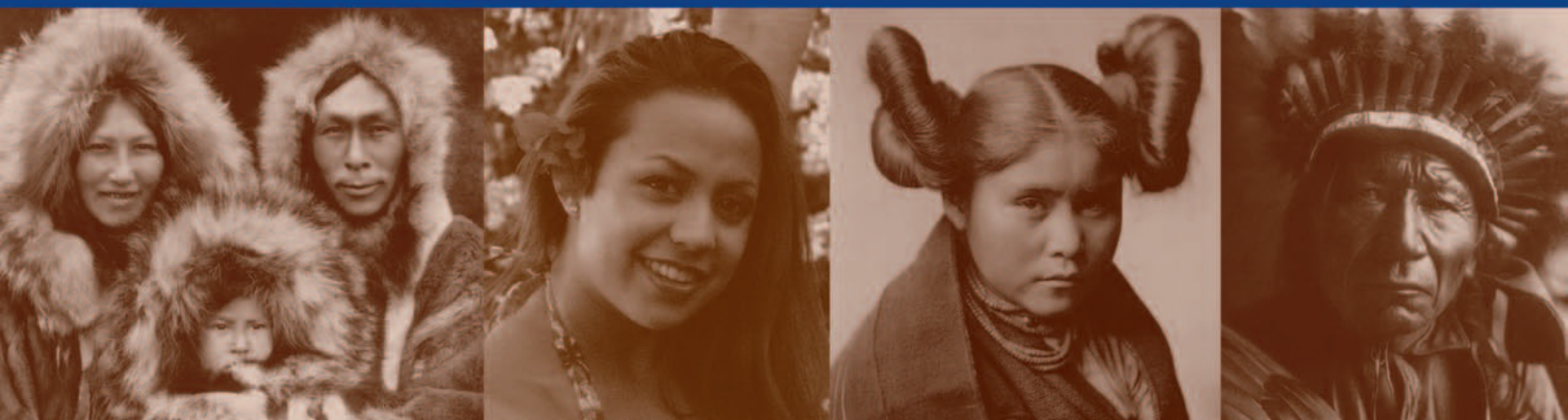
Native Language Preservation
A Reference Guide
for Establishing Archives and Repositories



Native Languages Archives Repository Project

Reference Guide

REFERENCE GUIDE SUMMARY

To share with future generations, this Reference Guide was developed in support of the Native American Languages Act of 1992 to assure the survival and continuing vitality of Native languages. This Reference Guide – Native Language Preservation, Establishing Archives and Repositories - was produced with funding provided by the Administration for Native Americans (ANA) through an Interagency Agreement with the Smithsonian National Museum of the American Indian (NMAI).

Native heritage languages are indeed endangered and immediate action is needed to save them. Language experts estimate that ninety percent of the 175 Native American languages spoken today are at risk and could disappear over the next two decades. This Reference Guide looks at the complex matter of saving languages through an intensely focused lens of language materials preservation and it provides practical ways in which communities, people and entities can marshal forces, combine efforts and apply resources to this emergency need.

In conducting this project and preparing the Reference Guide, the first question that needed to be answered was: What is a language repository? A language repository is a collection of language materials that is being preserved in an orderly and accessible manner. The second question was: What is preservation? Preservation is an act to prevent further deterioration of any kind to records or materials.

The old lines between archives, libraries, museums and repositories are blurring, if not disappearing, along with strict distinctions between electronic and physical repositories. While types of repositories are discussed in this Reference Guide the focus is on language repositories broadly and on language preservation and archival issues in detail.

This Reference Guide contains chapters on the reasons and methods for preserving language materials and developing language repositories, as well as chapters on legal, policy and cost considerations.

Specifically, this Reference Guide contains the following sections:

Leading the project to develop this Reference Guide and recommendations for a language repository was Dr. Helen Maynor (Scheirbeck) (Lumbee), NMAI Assistant Director for Public Programs, who served as the Principal Investigator for the NMAI Project, and Ms. Sheila K. Cooper (Seneca), ANA Director of Program Operations, who served as the Project Officer to oversee and implement this agreement. Ms. Suzan Shown Harjo (Cheyenne & Hodulgee Muscogee), President of the Morning Star Institute, served as the Project Director and oversaw and assessed archival site visits and contracted field work; conducted two Advisory Work Group seminars; and completed the report on options and policy considerations regarding Native language repositories.

The Project Directors assembled a core team with expertise in revitalizing heritage languages; developing pertinent federal law and policy; protecting tribal cultural rights; preserving Native cultural materials; managing collections; and evaluating archives, libraries and related repositories. The Project Team Members: Senior Advisor on Language Models Darrell R. Kipp (Blackfeet); Cultural Property Rights Specialist Victoria A. Santana (Blackfeet); Archivists June I. Degnan (Yupik), Eunice Kahn (Navajo) and Gayle Yiotis (Pamunkey); Program Assistant David Sanborn (Penobscot); Technology Specialist Thomas Davis; Grants and Contracts Officer (SI Office of Sponsored Projects) Julian Palinski; Public Programs Specialist Loren Bird Rattler (Blackfeet); Technology Production Assistant, Jimmy Locklear (Lumbee); and Research Interns India Comosona (Zuni Pueblo) and Jessica Fawn White (Hoopa).

This project also had an outstanding and insightful Advisory Work Group (AWG). These members graciously contributed their time and expertise to provide guidance and clarity to this project. The AWG members: Jimmy Arterberry (Comanche), Dr. David Beaulieu (White Earth Chippewa), Virginia R. Beavert (Yakama), Dr. Carol Cornelius (Oneida), Dr. William G. Demmert, Jr. (Tlingit & Oglala Sioux), Hon. Joel M. Frank, Sr. (Seminole & Miccosukee), Dr., Karen Gayton Swisher (Standing Rock Sioux), Jennifer Dahle Harrison, Gerald L. Hill, Esq. (Oneida), Hon. Melvin Juanico (Acoma Pueblo), Hon. Arden Kucate (Zuni Pueblo), Cindy LaMarr (Paiute & Pit River), Margaret Mauldin (Muscogee Creek), Dr. Beatrice Medicine (Sihasapa Lakota), Dr. Tessie Naranjo (Santa Clara Pueblo), Dr. Jon Allan Reyhner, Lois J. Risling (Hoopa, Yurok & Karuk), Dr. Gloria E. Sly (Cherokee), Marianne Smith, Faith Spotted Eagle (Ihanktonwan Nakota), Dr. Robert H. Stauffer, Della C. Warrior (Otoe-Missouria), Albert White Hat, Sr. (Sicangu Lakota) and Dr. Ofelia Zepeda (Tohono O'odham).

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FOREWORD

Native Voice/Native Language

Some say that the instructional manual—the "how-to" book that serves as a practical, hands-on guide to a particular subject—is the quintessential American literary genre. Perhaps the influence of Native Americans, who are so adept at the kind of handiwork that can transform the utilitarian into the beautiful, are partly responsible for this. In any case, it is my distinct privilege to invite you into the pages of this monumental manual. Without making any excessive claims for its literary value, I can assure you that this Reference Guide addresses a crucial need in the Indian world. That need, quite simply, is to save our indigenous languages from extinction.

In the professional environment of the National Museum of the American Indian, we often cite the need to make "the Native voice" central in all our projects, and that is as it should be. And while many of our Native voices make themselves heard in English, there is something deeply thrilling and profoundly affirmative about Native voices speaking in Native languages. I have been in our auditorium for those question-and-answer sessions that often follow a lecture, and I have seen everyone in that crowded space collectively shift to a new level of attentiveness when a Native person steps up to the microphone to ask a question, and begins by speaking in his or her Native tongue. Even those who don't know the language recognize the almost spiritual, triumphal nature of these moments. Natives and non-Natives know tacitly that we owe the survival of the indigenous languages of this hemisphere to a powerful mix that is part determination and part miracle.

But the story is not one of unalloyed triumph. In an essay for a music album we recently produced—called *Beautiful Beyond: Christian Songs in Native Languages*—Oneida attorney Gerald L. Hill, who is an advisor on this project and president of the Indigenous Language Institute, offered this piece of statistical bleakness:

> "Of the estimated 300 original languages spoken within the North American continent, some 175 living languages remain. Often, elders and adults are the only speakers of these surviving languages. Of the 175 living languages, 55 are spoken by only 1 to 6 people. Only 20 of the remaining languages are spoken widely by children. Without a concerted effort at language retention, many more of the surviving languages could be lost."

Cultural identity has many sources and aspects. Music, dance, literature, art, craftsmanship, clothing, religion, even food, are all ways through which groups of people define who they are. But perhaps no element of cultural identity is as fundamental as language. Our languages and our cultures are inextricably linked; survival of language means survival of culture. And I can think of no effort more important to the National Museum of the American Indian than helping to ensure the happy future of this most pivotal of cultural realities. For in spite of the terrible linguistic destruction endured by the Indigenous Peoples of this hemisphere—not to mention the catalog of other burdens we have borne over the past five hundred years—I believe it is not only possible to stem the loss of Native languages, but to revive many of them as well.

But preserving and reviving threatened languages takes hard work and know-how, and that's where this volume comes in. It is my hope—my belief, really—that this manual will be an enormously effective tool in helping Native communities save and revitalize their languages. To communities struggling with language preservation initiatives, this project offers a wealth of information, advice and guidance. At the National Museum of the American Indian, we have every intention of keeping the language imperative at the forefront of our work, through seminars, conferences, programs and other activities. This project—a happy marriage between the NMAI and the Department of Health and Human Services' Administration for Native Americans—is a good place for us to begin those efforts.

There are far too many people to thank in this brief foreword, so let me just mention the two who have provided so much of the fuel that drove this project forward. Helen Maynor (Scheirbeck), NMAI's Assistant Director for Public Programs, and Suzan Shown Harjo, President of the Morning Star Institute, are among the most illustrious names in the Native world. They have worked with tireless dedication for decades in defense of the interests of Indians and their communities, and their labors have helped transform life for many Native people today. I knew when they decided to team up for this project that its success was assured.

--**W. Richard West, Jr**.
(Southern Cheyenne and Member of the Cheyenne and Arapaho Tribes of Oklahoma)
Founding Director, National Museum of the American Indian, Smithsonian Institution

Chapter 1: Why Preserve Native Heritage Languages Materials

PREFACE

"Why preserve Native heritage language materials?" Answers to this question may be found in expressions on the very nature of Native languages and why they should be saved and revitalized at all. Native peoples, as with all human beings, live in language, where the past is told and future foretold. Revitalizing heritage languages provides Native nations and language communities with the means for reclaiming history and breathing new life into culture and society.

Here are some ways in which the meaning, history and condition of Native languages are addressed by four Native American writers:

> We exist in the element of language. Someone has said that to think is to talk to oneself. The implications of this equation are crucial. Language is necessary to thought, and thought (as it is manifested in language) distinguishes us humans from all other creatures.
>
> In the equation above, we might substitute the word *imagination* for "thought." For surely imagination proceeds from language in the very way that thought does, to the extent that we can separate thought and imagination.
>
> Language is the stuff of the imagination. The imagination is the creative aspect of language. It enables us to use language to its highest potential. It enables us to realize a reality beyond the ordinary; it enables us to create and to re-create ourselves in story and literature. It is the possible accomplishment of immortality.
>
> *--from The Man Made of Words by Pulitzer Prize winner* ***N. Scott Momaday*** *(Kiowa), Founding Trustee, National Museum of the American Indian*

> The second step in becoming *it'jati'wa* (a genuine person), may be in loving ourselves and the earth with such determined velocity that we not only learn our languages and begin reconstructing the web of life, but that we sing the beautiful songs of our ancestors, completing the cycle.
>
> For it was a song, according to our narratives, that caused all of the universe to have a beginning….
>
> It seems that each person (myself included) who has attempted to relegate my native languages to spelling in English has had a great deal of difficulty, probably because languages are living, breathing, real, flexible entities, and not something that can be stacked like fire wood."
>
> *--from The Morning the Sun Went Down by* ***Darryl Babe Wilson****, Ph.D. (Achumawe and Atsugewi Tribes, Pit River Nation), Educator and Writer*

> Often our ancestors were successfully conditioned to perceive native language as inferior or defective in comparison to the English. A direct response, as it often happened, was that the previous generation did not teach tribal languages to our generation. My relationship to the English language is not as dramatic or transparent as with those

> earlier generations. English is the only language I have ever spoken. In the shift to reclaim native languages, it is the people of my generation and of our children's who perceived ourselves as impoverished because we do not have access to that mode of production. We represent two generations upon which colonization successfully severed the link between native language and the production of culture. (**Gloria Bird)**
>
> We are coming out of one or two centuries of war, a war that hasn't ended. Many of us…are using the "enemy language" with which to tell our truths, to sing, to remember ourselves during these troubled times. Some of us speak our native languages as well as English, and/or Spanish or French. Some speak only English, Spanish, or French because the use of our tribal languages was prohibited in schools and in adoptive homes, or these languages were suppressed to near extinction by some other casualty of culture and selfhood. Shame outlines the losses. (**Joy Harjo**)
>
> *--from Reinventing the Enemy's Language, edited by **Joy Harjo** (Muscogee) and **Gloria Bird** (Spokane)*

More than half of the Native American heritage languages were driven underground or to extinction by specific assimilation policies of the United States. First, the Congress appropriated monies to a "Civilization Fund" for missionaries and churches to proselytize Indian people and encourage their religious and language conversion. Second, the federal government devised an Indian boarding school system in the 1870s, which promoted an English-only/Christian-only curriculum in a setting where children were removed from their families, nations and lands, and where corporal punishment was applied for such violations as speaking heritage languages. Third, from the 1880s to the 1930s, the federal "Civilization Regulations" outlawed Indian ceremonies and made it a crime for Indian people to do anything that was "anti-progressive in nature," such as for parents to keep a child from being "civilized."

This generational suppression of traditional languages and cultures and the recovery from it are described in a 2004 book by one of the NMAI Project Advisors in this way:

> There is a long history of opposition to forced assimilation, including efforts to maintain tribal languages and cultures. Sequoyah, a Cherokee, developed a syllabary in the early 1800s so that his people could write their own languages. The tribe started its own bilingual Cherokee-English newspaper, but the state of Georgia confiscated the press….
>
> It can be argued that, in the words of John Collier, President Franklin D. Roosevelt's Commission of Indian Affairs, modern society has lost the "passion and reverence for human personality and for the web of life and the earth which the American Indians have tended as a central sacred fire."
>
> Decades ago, perceptive teachers saw the advantages of using Indian languages and recognized the gap between what Indians wanted and needed and what was forced on them in schools. The civil rights movement that began after World War II has focused the attention of political activists and researchers on the desires and needs of all American minorities and has led to a number of studies that point out that Indian schools were destroying the identity of the children they were supposed to serve. Among these were *Indian Education: A National Tragedy, a National Challenge* (1969), also known as the Kennedy Report, and critical examinations from an anthropological perspective (e.g., King 1967; Wolcott 1967). George Spindler (1987) maintained that Indian schools were ineffective because educators did not recognize and build on the tribal heritage of students and called for culturally appropriate teaching methods and materials, including instruction and materials in the students' Native languages.

> In the last decades of the twentieth century there was danger on several fronts to linguistically and culturally appropriate curricula in the United States….(The English-only) movement, with its emphasis on teaching mainstream Euro-American culture, jeopardized the teaching of non-Western, non-European, non-Judeo-Christian heritages in U.S. schools.
>
> These assimilationist forces have been countered by American Indians who lobbied and won passage of the Indian Religious Freedoms Act of 1978 and the Native American Languages Act of 1990. In addition, the U.S. Secretary of Education's Indian Nations at Risk Task Force (INAR 1991, 16) found that "schools that respect and support a student's language and culture are significantly more successful in educating those students."
>
> *--from American Indian Education: A History by **Jon Reyhner** and **Jeanne Eder***

U.S. POLICY RESPECTING NATIVE AMERICAN HERITAGE LANGUAGES

The United States reversed its earlier policies and took a step to restore heritage languages with enactment of the Native American Languages Act of 1990, which President George H. W. Bush signed into law on October 30, 1990. The Act declares, "It is the policy of the United States to preserve, protect, and promote the rights and freedoms of Native Americans to use, practice, and develop Native American languages."

In the Native American Languages Act, Congress found that "acts of suppression and extermination directed against Native American languages and cultures are in conflict with the United States policy of self-determination for Native Americans." The Act's first three congressional findings are:

1. "the status of cultures and languages of Native Americans is unique and the United States has the responsibility to act together with Native Americans to ensure the survival of these unique cultures and languages;"
2. "special status is accorded Native Americans in the United States, a status that recognizes distinct cultural and political rights, including the right to continue separate identities;" and
3. "the traditional languages of Native Americans are an integral part of their cultures and identities and form the basic medium for the transmission, and thus survival, of Native American cultures, literatures, histories, religions, political institutions, and values."

In follow-on laws in 1992 and 2003, Congress provided additional authorities and priorities for Native language grants and initiatives. With few exceptions, the federal language grants have been made by the Administration for Native Americans in the Department of Health and Human Services. The ANA also is charged with duties regarding a repository for Native language materials. Congress also has included references to Native languages and collections of language materials in numerous education laws and in the National Museum of the American Indian Act of 1989.

VOICES OF LANGUAGE WARRIORS ON PRESERVATION OF HERITAGE LANGUAGES AND MATERIALS

Chapter 1 focuses on reasons for preserving Native heritage language materials. It concludes with survey profiles of some Native nations and language communities that are preserving languages and/or materials. Survey profiles for Native nations in California are presented at the end of Chapter 2.

This Chapter and the next are presented in the voices of Native and non-Native language warriors who are members and associates of the NMAI Project Team and Advisory Work Group (AWG) They provide a wealth of experience working in Native American nations and language communities, as well as in Native and non-Native academic settings.

The AWG Members addressed the word "preserve," noting that "pickling" is the word it suggests to them. They wanted to convey to the reader that, while "preservation" is the term of art in the subject areas, it is important to move beyond the concept and practice of "storing" the language. The reader is urged to receive and use the word "preserve" within the meaning and context of the following: to protect from loss or destruction, secure, shield, maintain, keep up, sustain and defend.

They also wanted the reader to have descriptions of "preservation" and "conservation," in order to appreciate the distinction between the two terms of art. *Preservation* is an action which prevents further deterioration of a record. *Conservation* is an action which restores material to a former state or as close to the original state as possible.

The AWG Members were asked to share their own ideas, experience and/or research regarding language preservation, archiving language materials and developing a Native languages archives repository. Their responses appear in their own words in this Chapter.

AWG Member Marianne Smith, Director of Chapman University's Project I-Teach, synthesized the AWG's view that a Native languages archives repository can serve as a resource for Native communities and can provide and promote stability and growth through:

- Knowing and understanding the language;
- Knowing and understanding accurate history;
- Retrieving a piece of Native ancestors' knowledge;
- Knowing and understanding the traditions, customs and mores of a community;
- Providing a base of knowledge and understanding that allows for personal and community identity; social, psychological and spiritual well-being; and a contemporary and future place in the world;
- Providing appropriate information about Native peoples that allows others to know, understand and appreciate Native contributions to the world.

A Perspective on Language Preservation: Historical Trauma Response

Going into my second year of teaching the Dakota/Nakota Language at the Ihanktonwan Community College, after watching others struggle with it for 15 years, I have been able to put into practice some of my language beliefs. I thank my good friend and relative Wilma Ashes for inviting me to do this work. Although my own shame prevented me from doing this earlier in my life, I am more effective now with the understanding that I have.

I am an international consultant conducting training and work in understanding the Red Rage that is now consuming many of our Native people. This historical trauma response comes from the stressors of so much being lost and now has ingrained itself into an everyday response in our people, even in reaction to the tiniest events. Even anger management programs are not effective for us, because we do not go to the natural human reaction of anger. We go straight to rage and for the throat. This has created a pattern in our psyche and brain patterns of all or nothing, undoing our ability to heal and once again become the "great hunters" of all knowledge and nature that we once were.

As I watch my students begin to welcome their language home, IT IS A CERMONY. It is a ceremony of healing for us and for them individually to realize how they might be preventing the language from coming

home unless they recognize the dynamics of oppression and shame that have replaced our desire to learn.

I can hear the shame and oppression when we say: “I didn’t learn because my mom or dad went to boarding school.” Yes, it was bad that our parents experienced acts of violence, but now no one is holding a ruler over us telling us not to learn. Yet, we still hold the same fear and shame. I tell people that, if they make that statement today, they have just committed “language suicide” on their beautiful language.

If an individual in her or his lifetime learns 1000 words, memorized or otherwise, they have reached the first level of fluency in their language. This is doable.

The shame is there when “keepers of the language who are fluent” make fun of the way the words are mispronounced when people want to come home to the language. The shame is there when we giggle and get uncomfortable about Native words that we know or refuse to use the words that we know. The trauma is still there when we say, “It is too late for me -- too late, when I can learn how to operate a computer with complicated software and still be afraid of my own language.”

Yes, the damage was done by the oppressors, unless we individually step up to say, “When my language was taken, it was an act of violence and no more will I be afraid of my own language.” Then we will be free of those like Col. Richard Pratt at the Indian Industrial School in Carlisle, Pennsylvania, the first federal Indian boarding school, who made the welcome speech in 1878 to the first group of precious Native students, shorn of their beautiful braids and traditional dress: “The Indian in you is dead!” Unfortunately some of us still believe that. This statement is not designed to shame anyone, but to ask them to disprove Col. Pratt, even generations later.

So what do we need to preserve? WE NEED TO PRESERVE THE AWARENESS THAT SHAME AND OPPRESSION INFLICTED UPON OUR PEOPLE IS PREVENTING OUR LANGUAGE FROM MAKING A COMEBACK. WE NEED A THOROUGH UNDERSTANDING OF THIS IN OUR OWN PSYCHE, PARTICULARLY IF WE ARE A LANGUAGE TEACHER.

This was shown to me just yesterday, when one of my language students came in to make up her final, which is done orally. As she struggled to speak the best that she could, I told her not to be afraid and not to be ashamed of herself. She began to weep in a deep, deep place of loss. Her little grandchild came up and hugged her and told her it was ok. As we all sat and cried in this “wiping of the tears” for our language, she saw that this is the beginning of her grieving the loss of her language and now she can begin to step up in a “good way.” I told her that she is only a little girl in the language, probably a three-year old, linguistically. Her granddaughter liked that. So, when our students begin welcoming the language home, they are like the little girl and boy spirits that went off to Carlisle and other places and never came home. Much work is to be done.

Lastly, if we teach the language, we must work on our own healing to remove the harshness and anger in our voices. Our languages are loving words. Now I hear teachers say harshly and in desperation: “You better learn your language!” That is frightening to ones who are just beginning their journeys. Many language teachers have children of their own who did not learn their language. There are many valid reasons for that and none that we have to be ashamed of. With me, my children did not become fluent because I had to do my own healing before I could effectively teach them, without the rage and desperation. We must teach language the old way, like teaching the “beloved children” that we are. Not teaching just the numbers and colors, like English was taught.

In closing, I am inspired by the foresight that a grandfather Tatanka Sha (Red Buffalo) had in 1896, when he saw the future of our people: “The people no longer hunt. Someday they will no longer dance. THEN THE LANGUAGE WILL LEAVE AND EMPTINESS WILL FILL THEIR DAYS. THE CHILDREN WILL LEARN A NEW GAME, WHICH IS TO HUSH. And all things that live and move will seem hostile. That’s when the people as a nation will live no longer. Our culture tells me the buffalo sacrificed for us.”

This grandfather left these words of insight for us. It is not too late. Let us do ceremonies all through our land to let the shame, jealousy and hostility go. It is not too late. The buffalo are waiting.

*--**Faith Spotted Eagle** (Ihanktonwan Nakota), Dakota Language Teacher, Yankton Sioux Tribe, Lake Andes, South Dakota, and NMAI Project Advisory Work Group Member*

Preservation of Native Languages

Each of us uses language as a tool for communicating ideas in a variety of forms and contexts based on our practical experiences and cultural influences. Language is considered intelligence in some circles (Gardner, 1985 & 1995; Viadero, 1998) that develops early in a young child, that continues to mature during one's adult life and that we tend to reinforce among our own children.

If Native American communities (American Indian, Alaska Native and Native Hawaiian) are to successfully maintain their different languages, use and development of these languages must begin early in a youngster's life. We know that, during the first 12 months after birth, an infant learns to differentiate between sounds and to reproduce sounds that are constantly reinforced. We know that a youngster develops an early understanding of the rules for a particular language through listening, and participating in the normal use of that language. We also know that we are able to learn more than one language simultaneously and keep the rules for those different languages separate.

In the last few years, we have learned that language use and other experiences are directly connected to the number of synaptic connections built in a youngster's brain, and that the more we build the smarter we become (Demmert, 2001; Demmert & Towner, 2003; Afifi, 2002). Early development of more than one language allows the brain to utilize a particular part of the brain to be developed and that later development of another language uses a different part of the brain, making it more difficult to learn second or other languages (Ackerman, 2004; Reuters, 2004). In addition, there is probably a transfer of certain skills and understandings that occur when learning more than one language (August & Hakuta, 1997).

When assessing intellectual development, two of the most accurate predictors of a young person's ability to succeed in school are reading readiness (phonemic awareness, vocabulary, alphabet naming and listening comprehension) and two dimensions of a youngster's social behavior: 1) interpersonal skills (the quality of social relationships with peers) and 2) work-related social skills (a child's degree of independence, responsibility, and self-control) at 54 months of age (5 ½ years of age) (NICHD, 2004). There are also three environmental influences linked to levels of academic performance among young children (NICHD, 2004). These influences include the following:

1) *High quality parenting* (the degree to which a youngster is provided with an enriched warm and responsive learning environment -- which includes appropriate control and discipline over children -- are closely associated with both higher first grade reading and mathematic skills).
2) *High quality child-care environments* (stimulating activity and nurturing, as reflected in high quality parenting).
3) *High quality first-grade classrooms* (with a focus on literacy instruction, evaluative feedback, instructional conversation and encouraging child responsibilities).

These influences on intellectual development, including language, are offset in certain environments and offer reasons for some of the difficulties in which Native children find themselves. A formal RAND study of The Early Childhood Longitudinal Survey (ECLS) -- which is a five-year study (in its fourth year) of young children entering kindergarten -- provides us with some preliminary data on Native students.

This study tells us that Native American children start kindergarten with significantly lower reading, mathematics and general knowledge achievement scores than the other groups (statistically significant

for reading achievement and only statistically significant for mathematics and general knowledge when compared to Whites). The study also tells us that higher or lower achievement for reading, mathematics, and general knowledge is linked to a number of child, parent, and community characteristics. These characteristics, or risk factors, include the following:

- Education level of parents
- Economic circumstances
- Number of siblings
- Age of mother at birth
- Number and biological relationships of a child's caregivers
- Language spoken at home
- Frequency of reading to the child
- Numbers of children's books in the home
- Health of the child (as reported by the parent)
- Birth-weight
- Presence of learning, speech and/or hearing disabilities
- Emotional connection to the child

Additional analysis of this information tells us: that multiple risk factors (the number of factors that are evident in a young child's environment) account for the highest and lowest predicted scores; that rural students score lower on average than urban students; that 70 percent of Native students live in rural areas; that Native students do as well or better than African and Hispanic Americans academically by grade four; and that family characteristics account for about one-half of the achievement gap between White and Native Americans. The remaining gap seems to be accounted for by characteristics outside the family and associated with the wider community (e.g. social capital – poor, usually rural environments) (Grissmer, Demmert, Towner, Eiseman, & Cressell, 2004).

The Research Literature

There is formal evidence that culturally-based education (CBE) programs, with strong Native language programs, influence a youngster's academic, social and cultural development, including an individual's identity, in a positive way (Demmert, 2001; Demmert & Towner, 2003). Genetics, cultural environment and practical experiences combine to influence the development of children early in their lives, and determine a person's cognitive, social, psychological, spiritual and physical development. The transfer of knowledge and tradition from one generation to the next must take into account the cultural settings, the resources and the social priorities of a people in order to motivate the young, to strengthen local communities and pursue new knowledge. Language, tradition, social activity, prior knowledge and the ability to apply what one has learned to new problems combine to build the intellectual preferences and cognitive levels of an individual (Afifi & Bergman, 2002; Bowman, Donovan, Burns eds., 2001; Begley, 1996; Sousa, 1992; Bruner, 1966; Ogbu, 2003; Gardner, 1985 & 1995; Viadero, 1998; Vygotsky, 1994).

According to Jerome Bruner, "….culture shapes mind, …it provides us with the tool kit by which we construct not only our worlds but our very conceptions of our selves and our powers." He further states that "….you cannot understand mental activity unless you take into account the cultural setting and its resources, the very things that give mind its shape and scope. Learning, remembering, talking, imaging: all of them are made possible by participating in a culture" (Bruner, pp x-xi, 1996).

Language vocabularies and routines acquired by learners through these processes are the elements that account for community, linguistic and cultural continuity, and are the primary cognitive tools for individual and group problem-solving and adaptations (e.g., culturally-based secondary socialization processes like schooling can be facilitated by activating the learners' cognitive and linguistic tools laid down by community socialization). Primary to this hypothesis is that activity (primarily joint activity) is the setting in which language and cognition are developed, and that patterns of activity have a cultural basis (Demmert & Towner, 2003). (See Chapter Notes for references for this contribution.)

--***William G. Demmert, Jr.*** *(Tlingit & Oglala Sioux), Ed.D., Professor of Education, Woodring College of Education, Western Washington University, Bellingham, Washington, and NMAI Project Advisory Work Group Member*

Elders of Native Nations and Native Language Communities

A major consideration in Native American communities is respecting the longstanding involvement of the older generations of the Native Peoples in all aspects of language revitalization. This respect involves the admonition by Native elders that the language must be maintained in the purest form possible in light of the transference of parent-to-child transmission to teacher-to-student formats. Native language revitalization is now in the domain of language immersion schools and centers and no longer rests exclusively in the home or community at large.

This admonition by Native elders is an absolute and merits full attention, even at the archival repository level. It crucial to understand that, in the view of the older generations, the transference from oral-based learning and study of a language to the format based on the written form is necessary, but does not mean excessive liberties are acceptable in order to accomplish learning. The language is the parent of the culture and the foundation of the uniqueness of each Native nation. As such, the language must not be tampered with for the sake of expediency.

It once was common to utilize formal meetings of elders to stamp their approval on curriculum materials. That day is past. The inclusion of all speakers of the older generations in conjunction with tribal language revitalization efforts means a return to the format of community gatherings convened to discuss important events. Today, the most successful formats for the inclusion of the older generations amount to a return to the old ways of doing things.

Those actively involved in language revitalization need only present and discuss the latest advances in their programming at gatherings convened at appropriate times throughout the year, with the essential Native protocols in place. Each gathering becomes an opportunity, despite the occasional naysayer, to bring the language alive and give it status again as a cohesive tribal element.

--***Darrell R. Kipp****, MFA, M.Ed. (Blackfeet), Director and Founder, Piegan Institute, Browning, Montana, and NMAI Project Team Senior Advisor on Language Models*

Yakama Nation Language Elders

The elders believe it is the responsibility of the family to teach the Native language at home. However, the elders are moved away to live in retirement homes and the children do not have anyone to talk to, even if they are learning the language at school. Usually, the parents do not speak the language, or they believe it's best for the children to learn only English so that they will be able to survive in the modern world.

Native language teachers lack the certification required by the public schools for teaching the language. They do not have the proper resource material required to adequately teach the Native language in school. The teachers with credentials do not speak or understand the Native language and end up teaching English only.

The research materials stored in the archives at universities are not available to the public, as specified by the author. The linguistic studies in Native language are available almost only to the professionals. Consequently, I believe that a permanent storage for materials is essential, as long as it is available to Native nations, along with their restrictions about how it is to be used.

--***Virginia R. Beavert*** *(Yakama), Scholar in Residence of Sahaptin Language and Culture, Heritage College, Yakama Nation, Toppenish, Washington, and NMAI Project Advisory Work Group Member*

Preservation in Native Language Communities

In every Native nation and Native language community there are stories about individuals who merit the titles of prophets, geniuses, eccentrics and leaders ahead of their time. Someplace in the spectrum of decline of each language, often before it became noticeable, there were people who took it upon themselves to be the advocates, teachers, recorders and resources of their heritage languages. They were the soothsayers of their day. Today, the ingenuity, tact and diligence they displayed is affectionately admired by their contemporary counterparts. It can be said that within every Native nation and language community, there are those individuals, often unable themselves to fully explain their motivation, who are called to serve in the preservation of their language. They come from all walks of life with one thing in common: their love and commitment to keeping their heritage language viable. Today's practitioners of heritage language revitalization carry on a longstanding Native tradition.

Twenty years ago, disenchanted with the reluctance – or, in many cases, the refusal – of public school systems, especially on Indian reservations, to include tribal languages in the curriculums of the day, many individuals in Indigenous communities began to seek out alternative pathways to maintaining their languages. Despite the profusion of bilingual and Indian education-based funded programming, the number of Native children speaking their languages, continued to decline in almost every Native nation. It is said the residual effect of their parents' days at boarding and reservation day schools, along with the increasing emphasis on formal education as the mainspring to urbanization of America, had successfully deemed Native languages as archaic vestiges of the past for Native children. Maintaining and speaking tribal languages simply were not part of the modernization of Native America, but few bothered to investigate the ramifications of the loss on the quintessential world of Native people.

Unfortunately, the prophecy over the past twenty years by the early day language retention advocates about the eventual demise of Native languages is now being realized. Among numerous Native nations, the harsh reality is that no one, or only a mere number, still speaks the heritage language.

Twenty-five years ago, in New Zealand, the Maori People, instituted a master plan of language revitalization, which today finds them well established in a successful rejuvenation program fully enhanced with technology of the day, long-term education formats entirely in the Maori language and an enlivened society. Another excellent example of Indigenous language revival exists among the Hawaiian People, with the well established language programming of Punana Leo Immersion Programs. Today, with an increasing number of children schooled exclusively in the Hawaiian Language it is possible to obtain post-secondary degrees in the language at the University of Hawaii.

Twenty years ago, there were few Native language programs that were devoted exclusively to Native language learning environments. The Akwesasne Freedom School, now in its third decade of teaching the Mohawk Language and well ahead of its time, is one of the foremost examples of Native language programming.

In l987, the Piegan Institute was founded on the Blackfeet Indian Reservation in Montana for the sole purpose of researching, promoting, and preserving the Blackfoot Language. Through its initial work in the field, it became widely known in Native language communities across the country and remains a classic example of community-based programming in a Native language. In l994, Institute staff designed the Nizipuhwahsin School, a full tribal language immersion program, which became a model emulated on numerous reservations. The K-8 private school program is entering its tenth year of operation.

It is difficult to tally how many community language programs exist throughout the country. They are, for the most part, unheralded and ignored, struggling to survive against a mosaic of obstacles.

It is clear, though, what does bode well for fledging tribal language programs. The apparent ideal, based on established programs with any history of survival, is a private, community-based, small-scale program, unattached from any of the institutions of the day on the reservation or in the community. Those fledging programs utilizing separate private, state or tribal charters, tax exempt status and staff appear to garner more community support in the long run. The success they muster as private entities is offset by the lack of financial support enjoyed by public programming. They are at the mercy of sporadic foundation and private source funding, as well as long ingrained attitudes against teaching a Native language in a school environment.

Unfortunately, those programs derived out of public or tribal programming often suffer a different form of erasure. They begin with well-intentioned goals, but soon are diluted out of existence via the overwhelming bureaucracy of the parent organization or government. Stifling personnel policies, rigid pay scales and a low priority within the hierarchy doom their effectiveness and, ultimately, their existence. Numerous fledging programs have fallen prey to this incongruence in the past years. It is often said that the successful Native language school exudes the atmosphere of "Grammar's House," exposing an inherent incompatibility between Native language schooling and formal education formats.

Today, each Native nation and language community is unique when it comes to language revitalization. For the most part, observation shows that Native nations have been too slow to react in a dynamic way to forestall the demise of their language. Likely, most simply cannot believe it is happening. It seems that the demands of other social and financial issues overwhelm their capacity to react until it is entirely or almost too late. Those familiar with revitalization programming chronicle meetings with delegations from Native nations on the brink of losing their language and often can offer them little except solace.

The heritage language revitalization efforts are in the hands of the descendents, offshoots, counterparts and like-minded tribal individuals living out the legacy of their long-ago heroes. As long as there are individuals within each Native nation and language community responding to the call to keep the language alive and well, and their ingenuity, perseverance and dedication is in keeping with their long-ago predecessors, then hope springs eternal. --***Darrell R. Kipp***

Chickaloon Village Traditional Council

Athabascan languages and culture are in a crisis and near extinction. The current statistics on fluent Athabascan speakers are low and continue to decline. Many linguists and Tribal Elders agree that, if a language dies, so does the culture. The Ahtna Athabascan language is the Indigenous language of the Native people from the Upper Cook lnlet to the Copper River Region of Alaska. This distinctive language is an insight to the culture and spirituality of the Athabascan People.

In the past 100 years, the language has encountered many changes, due to Russian and Euro-American contact that has resulted in over 100 loan words to the vocabulary. The most devastating change was the loss of many speakers, who were punished for speaking their Native tongue. The results of this impact will never be forgotten, but today tribal governments are reviving their Indigenous languages, despite the changes.

Today the Alaska state legislature receives federal funding for Indian education, but it does not fund tribal education efforts. All federal Indian education monies are funneled through the state system. While there are over 225 federally recognized Tribes in Alaska – nearly half of the federally-recognized tribes in the entire United States – the State of Alaska requires that Tribes rescind their right to sovereignty as a prerequisite to receiving any state funding.

Regrettably, many Alaskan public schools do not provide a positive alternative for Native students, because most public schools do not offer curricula that include Native issues or a culturally-sensitive education. As a result, many Native students feel alienated. Indeed, there is a longstanding mistrust among Natives of classroom methods and the intentions of Alaskan school systems. Native students represent a disproportionate share of dropouts and underachievers in Alaska's public schools.

The Chickaloon Village Traditional Council decided to restore and rejuvenate our traditional worldview by instituting a *cultural preservation movement*. One of the initial steps of this movement was to enlist the support of our Elders who still remember our traditional culture and are able to teach the Ahtna Athabascan language, yenida'a stories (ancient stories) and traditional songs and dances to tribal children and adults. The Traditional Council decided to initiate the Ya Ne Dah Ah (Ancient Teachings) School on a full-time basis in October 1993, and to continue its plans of rejuvenating our Athabascan culture for all ages from infant through adult.

Chickaloon Village initiated this school called Ya Ne Dah Ah (YNDA); the first full-time, year-round, tribally owned and operated day care and elementary-secondary school in Alaska. Founded and staffed by Tribal Citizens who had seen the positive impact of tribally run schools in other Native communities, the YNDA School acknowledges the crisis in Alaskan Indigenous cultural education and confronts it at a local level. The school provides its students, ages 2-18, with an education integrating the Athabascan heritage and mainstream education. The curriculum has effectively melded traditional teachings with modern non-Native subjects, creating a learning environment in which Native students can identify with, and feel connected to, their culture and community while learning to understand and function productively in the modern world. Unlike the former Alaska boarding schools, children are not ashamed to be an Alaska Native person and are encouraged to recognize and acknowledge their Native heritage.

Due to the dedication and commitment Chickaloon Village and its Tribal Citizens have made to rejuvenate the Ahtna Athabascan language, Chickaloon Village has moved from Stage 8 in the Joshua Fishman Stages of Language Revitalization to Stage 7. This means that not only the Elders are speaking the language; some adults are now re-learning, but are not yet fluent. This is the age group whose language was forcefully denied.

--***Jennifer Dahle Harrison****, Finance Manager, Chickaloon Village Traditional Council, and NMAI Project Advisory Work Group Member, and* ***Kari Shaginoff-Johns****, Education Department Director, Chickaloon Village Traditional Council*

Lakota Language at Sinte Gleska University

Language is vital to Lakota culture. It is our bloodline. History has demonstrated that how we handle our language, how we develop it, can cause the Lakota people to grow or it can destroy us. Two hundred years ago, the language built us up to a point where we were progressive and a strong people. Within 200 years, the misuse of the language almost destroyed us. It is time the Lakota language returns as a vehicle for empowerment.

With this in mind, the goals of the Lakota Studies Department at Sinte Gleska University in Rosebud, South Dakota, are twofold:

1) to advocate and preserve the traditional pronunciation and translation of words and phrases; and
2) to empower students to read, write and speak their own language.

Our methodologies in teaching the Lakota language also reflect the premise that language is central to our culture and is a vehicle for empowerment. When learning a new language, there are four components that must be taught. To begin, students need to learn proper pronunciation. The Lakota language began to lose its power when slang language developed. Speakers, in an attempt to make the pronunciation easier for the non-speaker, stopped using guttural sounds. We started taking shortcuts with our language and slurring sounds together. As a result of acculturation, we became embarrassed to speak our language using all the sounds. Because each sound is represented by a letter or letter with a diacritic, the alphabet system becomes an important tool for learning proper pronunciation.

Another critical component of language comprehension is learning vocabulary. After an isolated sound is learned, students will then drill the sound within a Lakota word. This allows students to practice putting sounds together to articulate Lakota words. In our courses, vocabulary units are organized thematically, allowing students to build a basic foundation of vocabulary in the Lakota language.

With this base of Lakota vocabulary, students will learn how to form sentences. Lakota sentence structure differs from English sentences, reflecting a different way of thinking. When students learn another language, one must develop another heart and mind. Learning sentence structure will help students to learn to think in Lakota.

Finally, and perhaps most importantly, students will learn Lakota philosophy. Grammar without philosophy is a dead language. The Lakota language has life and meaning. The process of acculturation and assimilation effectively used our language to divide us into subcultures. As a result, we lost the importance of relationships, love and respect. By reconnecting the Lakota language to the Lakota philosophy, we will regain these values and the life of our culture.

--Albert White Hat Sr. *(Sicangu Lakota), Instructor, Lakota Studies Department, Sinte Gleska University, Rosebud Sioux Tribe, Mission, South Dakota, and NMAI Project Advisory Work Group Member*

Zuni Pueblo A:shiwi Language

The Zuni (A:shiwi) language is unique in that it is unrelated to any other Native American language in the United States. Since time immemorial, we have perpetuated our religion and our culture through oral communication.

In present day Zuni it remains unique to see the distinction between the deep wealth of religious prayers that use an esoteric and very old dialect of Zuni and the common everyday language.

Because of the delicacy and the intricacy of the religious ceremonies, it requires participants at least a year to be able to learn the religious language in order to fulfill their participation in certain rituals that warrant the survival of our A:shiwi language. As a traditional practitioner, your language has to be with you daily that bonds you within your spirituality and, most importantly, your identity.

Zuni is the predominant language spoken in Zuni homes today; however, it is becoming very noticeable that there is a lack of Zuni language skills among our pre-school and elementary-age children. Again, this is the primary reason why, weighed against the prophesies of our elders that generations to come would risk their wealth of language to become lost, it is so important today to reach out for and utilize at its utmost capacity all resources available from the native perspective and apply the mainstream of new methods of learning with the modern day Native American.

Starting in the 1970s, the Zuni schools began developing Zuni language materials to be used in the schools. At the same time, a “standardized” written Zuni alphabet and dictionary were being developed. This effort is continuing today, as does the development of more language materials.

In the late 1980s, an electronic Zuni dictionary was developed using the HyperCard program. In late 2003, a committee was formed to update the dictionary and that effort is ongoing today.

There have been other projects that have produced other materials; for example, the Doris Duke Oral History project that was done in the late 1960s and early 1970s. This project entailed the recording of stories, legends, fables and personal experiences as told by Zuni storytellers and produced over 900 hours of audiotape. This particular project was very significant in that it captured on tape our elders who are no longer with us who had this unique ability and humbleness to express in a way of using their delicate soft-spoken tone and bring to the listener a fulfilling and true understanding of our emergence

story that is so significant to our land, water, forests, animals, birds and mountains that are sacred and our way of life.

The Pueblo of Zuni has implemented a native language teaching certification process through the New Mexico State Education Department. This will enable the tribe to solidify and codify our language in both reading and writing with regards to the future of our young people and the generations to come.

With that in mind, it is very imperative for the benefit of the tribes to truly be given the opportunity to evaluate what types of materials are out there and their availability. Furthermore, it should be a question of what's really out there, how has it been used and by whom? For Zuni specific developed material, it would also raise the question of proprietary use of such materials from yesteryear.

In closing, the importance of this opportunity to enable tribes to create their own tribal language repositories would allow for better control of and re-evaluate what could be viewed as esoteric and culturally sensitive material that tribes weren't aware of and to preserve their own materials and allow for more access to resources for education. This all leads hand-in-hand with the importance of language preservation for Zuni towards our government, religion, parents and the community in order to sustain our identity towards our way of life and most importantly, sustain us spiritually. Without that, nations will continue to fall apart.

As society chief of the Big Ember society, this is my view that also reflects the grassroots view of the Zuni people. Their desire and devotion to retain and sustain our way of life by preserving and perpetuating our language in the modern day society we live in has to continue to be the backbone of our cultural survival.

Le:wi. Elahkwa.

--***Arden Kucate*** *(Zuni), Councilman, Pueblo of Zuni, Zuni, New Mexico, and NMAI Project Advisory Work Group Member*

SURVEY OF NATIVE LANGUAGE PROGRAMS IN SELECTED SCHOOL DISTRICTS IN ALASKA

Bering Straits School District (BSSD), P.O. Box 225, Unalakleet, Alaska 99684, (907) 624-3611.
The Bering Straits School District covers a vast area in rural Northwestern Alaska in about 50,000 square miles along the shores of the Bering Sea. There are different languages within the school district and those languages are taught conversationally within a bilingual classroom, and a local speaker of the language is the teacher. Within each village, the speakers of the Native language range within an age group of 45 years and older. It has only been in the recent years that Native language has been part of the school curriculum. Prior to that, in the days of our parents and grandparents, the rule for languages spoken within the schools was English-only and, if anything else was spoken, the speakers were punished, ostracized and had their mouths washed out with harsh lye soap. This information was provided by Frank Pratt, Coordinator of Program Support, in reference to teaching Native Language within the Bering Straits School District, who was interviewed by NMAI Project Archivist June Degnan.

Savoonga, AK 99769, Hogart Kingeokuk Sr Memorial School, Terry Peppers, Principal (907)984-6811.
Located on the coast of the north central part of St. Lawrence Island on the Bering Sea, the school has 170 K-12th grade students. Siberian Yupik is spoken here and the local experts are proficient in the indigenous language, traditional carving, sewing and Native dancing. The language is taught in a Bilingual class one period per day.

Gambell, AK. 99742, Gambell Schools, Steve Pitz, Principal, (907) 985-5515.
Located on the west end of St. Lawrence Island on the Bering Sea, the Chukotsk Peninsula lies only 38 miles away. With the reorganization of the former Soviet Union, flights have been made from Gambell to Providenya and back. 200 K-12th grade students attend this school where the Siberian Yupik is taught conversationally along with local customary traditions of song and dance.

Shishmaref, AK 99772, Shishmaref School, Joe Branch, Principal (907) 649-3021.
Located just south of the Arctic Circle on the Bering Sea, this school educates 180 K-12th grade students who are taught Inupiat Eskimo within a Bilingual classroom one period a day during the school year.

Brevig Mission, AK 99785, Brevig Mission School, Barbara Roberts, Principal. (907) 642-4021.
Located 75 miles Northwest of Nome, the school is located on the Coast of Port Clarence on the Seward Peninsula. There are 110 K-12th grade students taught Inupiat Eskimo within a Bilingual/Bicultural Classroom.

Wales, AK 99783, Kingikmiut School, Don Yates, Principal (907) 664-3121.
The westernmost community on the North American continent is located 111 miles NW of Nome on the Western tip of the Seward Peninsula on the Bering Sea. On a clear day one can see the Chukotsk Peninsula as well as Big and Little Diomede. 60 K-12th grade students are taught Inupiat Eskimo within a Bilingual/Bicultural classroom.

Teller, AK 99778, James C .Isabell School, Dewayne Bahusen, Principal (907) 642-3041.
Teller is located on the Seward Peninsula approximately 70 miles NW of Nome off the coast of Port Clarence on the Bering Sea. There 80 K-12th grades students who are taught Inupiat Eskimo within a Bilingual/Bicultural classroom.

Golovin, AK 99762, Martin L. Olsen School, Steve Simmons, Principal (907) 779-3021.
Located on a spit of land, the school is about 70 miles east of Nome on the Seward Peninsula on the Shores of the Bering Sea. There 50 K-12th grade students who study Inupiat Eskimo within a Bilingual/Bicultural classroom.

Elim, AK 99739, Aniguiin School, Jim Keef, Principal (907) 890-3021.
Located on the NW shore of Norton Bay on the Seward Peninsula, Elim is approximately 100 miles east of Nome. 100 K-12th grade students study Inupiat Eskimo and the local traditional customs within a Bilingual/Bicultural classroom.

Koyuk, AK 99752, Koyuk Malemute School, Chuck Connelley, Principal (907) 963-3021.
Located at the mouth of the Koyuk River on the eastern end of the Norton Sound, the school is 75 miles from Unalakleet. 100 K-12th grade students study Inupiat Eskimo within a Bilingual/Bicultural classroom daily.

Shaktoolik, AK 99771 Shaktoolik School, Joan Eddy, Principal (907) 955-3021.
Shaktoolik is located on the eastern shore of the Norton Sound. 80 K-12th grade students study Inupiat Eskimo within a Bilingual/Bicultural classroom daily.

Unalakleet, AK 99684 Frank A. Degnan High School and Unalakleet Elementary School, Monica Dickens, Principal (907) 624-3444.
Located on the southern coast of the Norton Sound on the Bering Sea, the school is host to 224 students in pre-school, K-12th grades are taught Inupiat Eskimo and local customs by 3 local persons within designated classes at least once daily.

St. Michael, AK 99659. Anthony A. Andrews School, Daniel Ruem, Principal (907) 624-3611
St. Michael is located on the southern coast of the Norton Sound on the Bering Sea. 135 K-12th grade are taught Yupik within a Bilingual/Bicultural classroom daily.

Stebbins, AK 99671 Tukurgailngug School, Vern Brenner, Principal (907) 934-3021
Located on the southern coast of the Norton Sound, the school is 50 miles S.E. of Unalakleet with a road connecting to St. Michael. 189 K-12th grades are taught Yupik within a Bilingual/Bicultural classroom daily. Language here is featured around the traditional dance festival of the area and historical local songs with guidance from the Elders.

White Mountain, AK 99784 The White Mountain School, Andy Havilland, Principal, (907) 638-3021.
Located on the north bank of the Fish River on the Seward Peninsula 65 miles east of Nome, this is the only village inland within the Bering Straits School District. 70 K-12th grade are taught Inupiat Eskimo within a Bilingual/Bicultural classroom daily.

North Slope Borough School District, 829 Aivak St. Barrow, AK 99723 (907) 852-5311.
There are three schools in Barrow and seven within the outlying communities across the Arctic. The Native language spoken here is Inupiat. The three schools in Barrow have Inupiaq taught within the classroom on a daily basis; the Inupiat Language within the other schools is optional. The No Child Left Behind program has created havoc in the teaching of Native languages. According to the requirements of NCLB, proficiency testing is in English. This has scaled progress in languages to a ratio of 75-25. Further, there no speakers of the Native language with a Type A Teaching Certificate, which is an Alaska requirement. In essence, because of state requirements, there are no Alaska Natives teaching Alaska Native languages. This situation creates much frustration for the students, parents and the community. This information was provided by Jana Harcharek, Coordinator of Bilingual and Multicultural Programs for the school district, who was interviewed by NMAI Project Archivist June Degnan.

Barrow, AK 99723 **Fred Ipalook Elementary School,** 2070 Ahkovak St. Rob Picou, Principal, 907-852-4711.
This is a program of 50/50 Immersion in K-3rd grade of 50% Inupiat and 50% English on a daily basis. The percentage is needed due to state standards that have to be met. Proficiency testing is in English throughout Alaska. All other grades have classes in Inupiat with instruction from a Native speaker for one-half to one hour on a daily basis.

Eben Hopson Middle School, 6501 Transit St. Helen Eckleman, Principal, 907-852-7794.
Students within this school are instructed in Inupiat for one hour daily by a Native Language speaker. Within the community the youngest fluent speakers of Inupiat are forty years of age.

Barrow High School, 1684 Okpik St. Gene Stone, Principal. 907-852-8950.
Students here receive instruction in Inupiat at least for one hour daily within a Bilingual/Bicultural Classroom.

Nunamiut School, 114 Illinois St. Anaktuvuk Pass, AK 99721. Dave Sharstrom, Principal. 907-662-3226.
Students in grades 3-8 are taught Inupiat by a local speaker of the language, Rachel Riley, for one-half hour daily within a Bilingual/Bicultural classroom.

Tikigaq School, 1837 Tikigaq Ave. Point Hope, AK 99766, Phil Rees, Principal, 907-368-2663.
Native Language Speaker David Stone returned home, taught himself the language and is the Inupiat Language Instructor within this school. The language is taught to students in grades K-6, on a daily basis, for one hour per day. English and Inupiat represent two different worlds. Inupiat holds the ancestral history and culture which clashes with English and new ideas. There does not appear to be a way to blend the two and make it possible to revitalize the Inupiat Language after the battering it took with the dawn of westernization, according to the Instructor.

Nuiqsut Trapper School, 3310 3rd Ave. Nuiqsut, AK 99789, Mac Whyte, Principal, 907-480-6712.
Students in this school are taught Inupiat in grades K-8 daily by a Native speaker of the language during one class period.

Meade River School, 4001 Kippi St. Atqasak, AK 99791, Ken Meacham, Principal, 907-633-6315.
Students in K-7 are taught the Inupiat Language within a classroom daily by a Native language speaker.

Harold Kaveolook School, 2001 Barter Ave, Kaktovik, AK 99747, Brad Allen, Principal 907-640-6626.

There 78 students attending this school. Within grades K-3 -12, the students attend a class in the Inupiat Language taught by an Inupiat Language Speaker.

Alak School, 567 Main St. Wainwright, AK 99782, Bob Thompson, Principal, 907-763-2541.
Within this school, 143 students study the Inupiat Language with a professionally M Certificated Teacher of the Inupiat Language in grades K-12. The Principal states that the students need more than just the classroom instruction. They need to hear the language outside the walls of the school and the language needs home and community support, not just lip service to it. Further, teachers are needed who have been professionally trained to teach the language.

Kali School, 1029 Qasiglalik St. Point Lay, AK Steve Pile, Principal 907-833-2311.
Within this school, 65 grade K-12 students in are taught the Inupiat Language daily for at least ½ hour. The Principal states that they need more than that amount of time to become fluent speakers. He says the language is dying without much hope of revitalization, due to lack of community support and the influence of television and computers that entice people away from study time.

SURVEY OF SELECTED NATIVE LANGUAGE PROGRAMS AND ARCHIVES IN SELECTED STATES

Eastern and Southern States

Algonquian Languages

Aroostook Band of Micmacs, PO Box 772, Presque Isle, ME 04769, 207-764-1972.
Language: Micmac.
Contact: Bernard Jerome.
Mr. Jerome said they received a planning grant to set up a language program. The Band has some language materials but they need to be updated and modified. They have one hieroglyphic language document ca. 1912 and a document in Micmac and French in the modern alphabet ca. 1915.

Passamaquoddy Tribe, PO Box 102, Princeton, ME 04668, (207) 796-2301
Language: Passamaquoddy.
Contact: Donald Soctomah.
The Tribe wants to preserve different stories and a variety of words in the Native language, but the program has limited funds. The museum staff makes the initial decision on what language material to collect and the Tribal Council makes the final decision. Tribal elders David Francis and Dolly Apt are working to preserve the language. They have been working on the language program for the last seven years, but will be out of funding this year. The Tribe is working to document all the words in the language, hoping that eventually funds can be found to create a dictionary. The biggest holdback is the funding and the death of the elder speakers of the Tribe. About 20 percent of the tribe's 3,000 member population are fluent speakers in the language. Mr. David Francis, the tribe's only linguist, is over 85 years old and works every day on the language. The base number of speakers is decreasing and more work is needed. Language material is stored on cassette tapes in the museum. They are working to record as much as possible and to locate other recordings.

Siouan Language

Catawba Nation, PO Box 750**,** Rock Hill, SC 29731, 803-328-2427.
Language: Catawba.
Contact: Claudia Y. Heinemann-Priest, Linguist.
The Language Department has two main functions: research and education. In education, our main goal is to have Catawba spoken on a daily basis by every Catawba like it was one hundred years ago. We

especially want to target the younger Catawba children at the daycares. We hope to accelerate this process with the Head Start program. The Language Department has ongoing Thursday afternoon, Wednesday evening and seniors' language classes. A curriculum for the teachers of the Head Start program and a curriculum to work with Adult Education classes are being developed. Aside from having an excellent tribal linguist on staff, the Language Department is working towards training a Catawba person to become the next tribal linguist through internship opportunities.

Muskogean Language

Coushatta Indian Tribe, PO Box 818**,** Elton, LA 70532**,** 337-584-2261.
Language: Coushatta.
Contact: Marie Guidry, Program Coordinator, Social Services Department.
The Coushatta Tribe has a very informal language program, taught by one person, Leland Thompson. He is in college now and teaches children age 6-7 on a part-time basis. One big problem is that the tribal members argue among themselves as to how something should be pronounced. This is so serious, it is contributing to the loss of the language. Of the 800 tribal members, possibly one-fourth (elders) still speak the language. No archives. They definitely realize the importance of having an archives and of preserving the language but it's moving slowly.

Mississippi Band of Choctaw Indians, PO Box 6010**,** Philadelphia, MS 39350**,** 601-650-7439.
Language: Choctaw.
Contact: Roseanne Tubby.
They have an immersion program in the daycare and Headstart classes, and a bilingual program. The community also has language classes for anyone of any age who is interested. Eighty percent of the Band speaks the language; but only three percent of three to five year olds speak it. In 1996, they started a tribal language program. They tested the children and found they were losing the language. So, in 1997, through an ANA grant, they started an immersion program in the Headstart and daycare classes. Out of 60 classrooms, only ten have a bilingual program in the seven communities. The dream is to have immersion classrooms in all of the Headstart and daycare classes, but they do not have enough staff to do that. Most of the teachers are Choctaw and do speak the language, but the majority of classes are still taught in English. Because it is an oral language development program, they do not have many textual materials, except for the curriculum which is stored in the archives.

Minnesota

Anishinaabe Language

The Minnesota Chippewa Tribe is a federally-recognized Tribe comprised of six distinct member reservations: Bois Forte, Fond du Lac, Grand Portage, Leech Lake, Mille Lacs, and White Earth. These members use the terms Anishinaabe, Ojibewe, Ojibeway and Chippewa when speaking of their language and culture.

Bois Forte Reservation, Heritage Center**,** PO Box 16, Lake Nett, MN 55772**,** Telephone: 218-753-6017
Contact: Karen Drift, an elder, teaches classes open to the community. The community does not believe in writing or recording of the language and thus does not have an archive devoted to language.

Fond du Lac Tribal and Community College, 2101 14th Street, Cloquet, MN 55720**,** Telephone: 218-879-0800.
The American Indian Studies Program teaches Anishinaabe Language and Culture. Oral and written fluency of Ojibwe are the major goals of this department.

Grand Portage Band of Chippewa Indians, P.O. Box 428, Grand Portage, MN 55604**,** Telephone: 218-475-2277**.** Contact: Education Office, 218-475-0123.

Leech Lake Tribal College, 113 Balsam Ave**,** P.O. Box 180**,** Cass Lake, MN 56633**,** Telephone: 218-335-4200, Contact: Joseph R. (Bob) Jourdain, Instructor.
College offers extensive courses in Ojibiwe language from beginner to advanced, Summer immersion courses as well as classes in Anishinaabe Studies.

Mille Lacs Band of Chippewa, HRC 67, Box 194**,** Onamia, MN 56359**,** Telephone: 320-532-4181.
Mille Lacs Band Elders teach children the Ojibewe language in day school programs.

White Earth Tribal and Community College, 210 Main Street South, PO Box 478, Mahnonmen, MN 56557, Contact: Mr. Greg Kingbird, Instructor, Anishinaabe Language and Cultural Experience.

The Red Lake Band of Chippewa Indians, PO Box 550, Red Lake, MN 56671, Telephone: 218-679-3341.

Dakota Language

Prairie Island Mdewakanton Dakota Indian Community, 5636 Sturgeon Lake Road, Welch, MN 55089, Telephone: 800-5545473.

Shakopee Mdewakanton Sioux (Dakota) Community, Cultural Resources Dept.**,** 2330 Sioux Trail NW**,** Prior Lake, MN 55372**,** Telephone: 952-496-6173

South Dakota

Dakota Language

Sisseton-Wahpeton College, BIA Rd 700, PO Box 689, Sisseton, SD 57262**,** Telephone: 605-698-3966. Contact: Clifford Canku, Dakota Studies Instructor, Aloma McGaa, Archivist.
The college offers courses to interested students in learning the Dakota Language.

Lakota Language

Cheyenne River Sioux Tribe, P.O. Box 590, Eagle Butte, SD 57625, Contact: Rosie Roach, Administrator of Language Programs in Cheyenne River schools
Cheyenne River's Good Child Program - Cinci Wakpa Waste - seeks to teach Lakota and English together in grades K-12.

Rosebud Sioux Tribe, PO Box 335**,** Rosebud SD, 57570, Telephone: 605-856-4561, Contact: Lydia Whirlwind Soldier, Indian Studies Coordinator.
Lakota Language and Culture are actively taught in all age groups in Rosebud Elementary, Todd County School District, St. Francis Indian School through the Indian Studies Coordinator.

Sinte Gleska University, 150 E. Second Street, P.O. Box 105, Mission, SD 57555, Telephone: 605-856-8100. Contact: Ione Quigley, Department Chair.
The University offers two and four year degrees in Lakota Studies including components in language, history and culture.

Oglala Lakota College, Box 490, Kyle, SD 57752**,** Telephone: 605-455-6000, Contact: Michelle May, Director, Learning Resource Center.
The archives at Oglala Lakota College's Learning Resource Center preserves materials valuable to the maintenance and enhancement of Oglala Lakota history and culture and to serve as a focal point for tribal members, tribal agencies, students and educators who seek information about Oglala Lakota history and culture.

Oklahoma

Cherokee Nation, P.O. Box 948, Tahlequah, OK 74465, Telephone: 918-458-6170, Contact: Anna Huckaby-Sixkiller, Language Training Coordinator, Email: cultural@cherokee.org.
The Cherokee Nation sponsors an extensive array of opportunities to learn Cherokee from pre-school to adult, employee and community education. They have recently started 10-week Cherokee language classes for beginners in various communities throughout the Cherokee Nation. The classes are for anyone interested in learning to read, write and speak the Cherokee language. There is no fee to take the class and Cherokee Nation provides all books and materials free of charge.

Chickasaw Nation, P.O. Box 1548 Ada, OK 74821, Telephone: 580-332-8478, Contact: Terri Haney
Language facilitators and fluent Chickasaw speakers are being sought for a plan to revitalize and preserve the Chickasaw language. Language facilitators will be trained to work with fluent Chickasaw speakers to develop community based language classes starting in the Summer of 2005.

Chickasaw Nation Museums, Archives, and Libraries, 580-310-6477.
Contact: Joshua D. Hinson, Manager, Photographic Archives.
Chickasaw Nation has limited language classes for adults and a program for Headstart. There may be a move sometime soon to start more involved language education. Mr. Hinson says that you must utilize language immersion for children if the language is to survive. They have perhaps 500 speakers, all over the age of 50.

Choctaw Nation, Drawer 1210**,** Durant, OK 74702**,** Telephone: 580-924-8280, Contact: Terry Ragan
Choctaw Nation offers High School, College, Online, Internet and Community Classes through their School of Choctaw Language.

Citizen Potawatomi Nation, 1601 S. Gordon Cooper Dr., Shawnee, OK 74801, Telephone: 405-275-3121**,** Contact: Jeremy Finch, Director, Cultural Resources Department**,** Email: jfinch@potawatomi.org
Citizen Potawatomi Nation's Cultural Resources Department offers a state of the art museum, archives, library and Potawatomi language programs. They will be expanding their services upon the completion of their new 30,000 square foot Cultural Heritage Center.

Comanche Nation, PO Box 3610**,** Lawton, OK 73502**,** Telephone: 580-492-4988, Fax: 580-353-6322, Email: clcpc@comanchelanguage.org.
Early attempts to maintain the Comanche language have been sporadic, with language classes and preservation efforts organized by individual tribal members, all working independently. In July of 1993, the Comanche Language and Cultural Preservation Committee was formed with the vision of reviving the Comanche language into a "living language" once again.

Delaware Tribe of Indians, 220 NW Virginia Ave., Bartlesville, OK 74003, Telephone: 918-336-5272. Cassette tapes are offered of introductory level Lenape language. No current language programs are offered.

Muscogee (Creek) Nation, P.O Box 580, Okmulgee, OK 74447**,** Telephone: 918-756-8700, Joyce A. Bear, Manager Cultural Preservation Office.
Muscogee (Creek) Nation offers language curricula for grades K-3 and maintains an extensive library and archives through the Cultural Preservation Office.

The Osage Nation, P.O. Box 779, Pawhuska, OK 74056**,** Telephone: 918-287-5506, Contact: Mongrain Lookout**,** Language Program Director.
The Osage Nation Language Program is currently teaching classes to employees and at the community level at the Osage Tribal Tourism Building. They are currently working toward having an Osage Language Institute and Campus and to offer classes in many locations to accommodate distance learners.

Ottawa Tribe of Oklahoma, P.O. Box 110**,** Miami, OK 74355**,** Telephone: 918-540-1536, Contact: Dr. Kevin Dawes, Ottawa Tribe language instructor.
Currently teaches the Ottawa language in the community setting.

Pawnee Nation of Oklahoma, P.O. Box 470**,** Pawnee, OK 74058, Telephone: 918-762-2541.
In 1997, the Pawnee Language Program was established to create language instruction materials including texts and audiovisual tapes. The program is a cooperative effort between the Pawnee Nation and the American Indian Studies Research Institute of Indiana University.

University of Oklahoma, **Native Language Program,** Department of Anthropology.
Language: Cherokee. Contact: Durbin Feeling. Phone: (405) 325-3729.
Language: Choctaw. Contact: LeRoy Sealy. Phone: (405) 325-6525.
Language: Creek / Muscogee. Contact: Margaret Mauldin. Phone: (405) 325-3729.
Language: Kiowa. Contact: Gus Palmer, Jr. (Panthaide). Phone: (405) 325-8786.
Since 1991, the Anthropology Department has offered classes in several Native American languages. The classes are taught by Native speakers with training in linguistics. The language courses combine lessons in the grammar of the language, with vocabulary lessons and supplementary material and activities designed to stimulate language learning in cultural and historical context. The student masters frequently used forms and then progresses to less frequently used forms. Considerable class time is spent on conversation, but the students also learn to read and write in the language.

CHAPTER NOTES on "Why Preserve Native Heritage Language Materials"

Principal contributors to this Chapter are NMAI Advisory Work Group Members and NMAI Project Advisory Work Group Members and NMAI Project Senior Advisor on Language Models Darrell R. Kipp (Blackfeet).

Principal contributors to this Chapter's telephone surveys of selected Native language programs and archives are NMAI Project Archivists June Degnan (Yupik) and Gayle Yiotis (Pamunkey) and NMAI Project Assistant David Sanborn (Penobscot).

Principal contributors to the text review of this Chapter are NMAI Project Advisory Work Group Members Dr. Carol Cornelius (Oneida), Dr. William G. Demmert, Jr. (Tlingit & Oglala Sioux), Hon. Arden Kucate (Zuni Pueblo), Dr. Tessie Naranjo (Santa Clara Pueblo) and Marianne Smith; M.A., and NMAI Assistant Director for Public Programs Helen Maynor Scheirbeck, Ed.D. (Lumbee), and NMAI Project Director Suzan Shown Harjo (Cheyenne & Hodulgee Muscogee).

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Chapter 2: What to Preserve: A Practical Approach to Preservation

Our Native languages are in the penultimate moment of their existence in this world. It is the last and only time that we will have the opportunity to save them. We must continue to promote the successful programs throughout Alaska and Indian Country.

We must quit endlessly lamenting and continuously cataloguing the causes of language death; instead, we must now deal with these issues by learning from successful language preservation efforts.

So if we do nothing, then we can expect our languages to be dead by the end of the next century. Even that timeline might be an optimistic (one), if we do nothing to preserve our languages.

A great void will be left in the universe that will never be filled when all of our languages die.

--***Richard Littlebear**, Ed.D. (Cheyenne), Educator, Linguist and former President of Chief Dull Knife College on the Northern Cheyenne Reservation, Montana, from Stabilizing Indigenous Languages*

A PERSPECTIVE ON WHAT TO PRESERVE

This practical approach to preserving Native heritage languages archives focuses on what should be included as part of a Native language repository. A comprehensive repository will include all appropriate information relevant to the stability, growth and identity of Native nations and Native language communities.

The archiving of language materials and other Native property can be highly sensitive in nature. In recognition of this, the NMAI Project Team and Advisory Work Group recommend establishing agreements regarding privacy and access with individuals, families, Native communities and tribal governments, as appropriate, before including any material in the language repository. This and related property matters are addressed in Chapter 4.

Examples of materials to collect for a language repository include, but are not limited to the categories and items below. Whenever appropriate and possible, bilingual annotations should be included.

Historical information, such as newspapers, correspondence, missionary materials, bilingual almanacs, recordings and videos.

Work from Native and non-Native language experts, linguists and consultants, such as fieldnotes, calendars and correspondence, as well as a glossary of symbols, terms and abbreviations that aid in understanding an individual's specific markings; research journals, reports and published materials; and names and affiliations of linguists who have worked with the language, even if their materials are not immediately accessible

Language teaching materials, such as audio and visual works, with translations when possible; songs, stories and histories; individual and group performances; recorded conversations between teacher-student, child-child, adult-child and women only and men only; videos that show gestures and listener responses; dictionaries, phrase books and grammar guides; formal and informal language curriculum; teacher training materials, manuals and guides; teacher lesson plan books and teacher-made instructional materials; and student work.

Biographical information, such as recordings of oral histories, with translations as available; biographies and autobiographies; language biographies that can make language "personal and

concrete" and allow language learners an opportunity to view the language from the "inside out" (Erard, 2003).

Music and art materials, such as music recordings with annotations; photographs, when permissible, or descriptions of all forms of communication through art work, including rock art, carvings and basket designs, with annotations; photographs of clothing, weaving and beadwork, with annotations; and videos and/or thick descriptions of performance art with annotations.

This Chapter contains guidelines and cautionary notes for language preservation by Project Team Member Darrell R. Kipp (Blackfeet). His experience stems from his work with the Piegan Institute and other language infusion programs, as well as his strong views on other ways of teaching and learning heritage languages.

Dr. Leanne Hinton follows with a view from the field of linguistics, reflecting her work with Advocates for Indigenous California Language Survival and as Chair of the Linguistics Department at the University of California at Berkeley. She was asked to write this perspective by her colleague Cindy LaMarr (Paiute & Pit River), AWG Member and National Indian Education Association Past President, because of the respect Dr. Hinton has earned for her work with people in California tribal language communities.

The views of AWG Members and associates on what to preserve are presented in their own words, as they are in Chapter 1. AWG Members draw advice from and describe aspects of their work inside Native nations and language communities, including Cherokee Nation, Comanche Nation, Oneida Tribe and Santa Clara Pueblo; others contribute from their experience working with Native languages in educational institutions.

Several of the AWG Members are present and former board members of the Indigenous Language Institute (ILI) of Santa Fe, New Mexico, and ILI Executive Director Inee Yang Slaughter has graciously contributed her advice on preserving Native heritage languages.

This Chapter concludes with a survey profile of language programs and preservation by Native nations in California. Other survey profiles appear at the end of the previous chapter.

GENERAL GUIDELINES

A crucial starting point in deciding what must be preserved in a Native heritage language archival repository is to understand that there is a void in most Native American communities regarding recorded information and material on tribal languages. The depth of linguistic study in tribal communities today does not rival in the least early day studies. The bulk of tribal language recordings lie dormant in academic archives -- and all too often in private collections -- with minimal contemporary study taking place.

Key to the success of language preservation efforts today is creation of an accessible and reciprocal connection between tribal communities and the repository archives. It is important to note that all materials relating to a tribal language are of equal importance and each item may have value in a tribal revitalization effort.

The dynamic language-based repository certainly should begin with historical materials, but organizers should remain cognizant of the contemporary work done by tribal scholars in recent years under the auspices of governmental and private funding sources. There are tribal collections geared primarily toward teaching the language which contain enormous volumes of language work. These collections are often audio and video based, providing an extra dimension to the work.

The basic premise of collecting primary and secondary data might best be maintained via tribal community input. Primary or first-hand information is key to many tribally-based programs. Secondary information or materials reported by a second party that are used in juxtaposition can produce valuable insights into a language.

The other consideration in a pragmatic preservation effort demands a compilation of the scattered collections of a tribal language into one location or index. Most of the major works about tribal languages were completed generations ago and there is a distinct void in information and material readily available to tribal people about how their language was studied, reported or used by others.

With the exception of noted lifetime linguistic efforts among particular tribes, it is unlikely that tribal members are even aware of the names of the linguists who studied their language. The name of the linguist is a common way of identifying the collection and determining where it is archived. Again, it is important for the tribal community to learn the locations of, and gain access to, materials on the content of individual studies and biographies of the linguists.

Biographies of the authors of linguistic studies provide insight into their work. All linguists had unique relationships with their tribal language experts, who are called "informants" by linguists, and the nature of those relationships shaped the content of their work. Knowing this can be crucial in determining the value of their collection. Religion-based linguistic studies often reflect a bias or exclusion of certain content in their work. Much of the Native language work of linguists, ethnographers, musicologists and anthropologists rests on dusty shelves in overcrowded archives, museum basements and off-campus warehouses. After gathering dust for many a year, the linguistic work can find new and valuable life in the hands of the Native people from whose heritage languages it derived.

The proverbial question raised among many tribal language groups is whether it is necessary to employ a linguist to assist in the revitalization and preservation effort. The answer is simply this: only if one is available and actually wants to join the fray, if funds are no problem and if it remains clear that the acquired linguist does not in any way take away the initiative of the Native nation or language community. Keep in mind that linguists talk like us, but they don't act like us.

In order for Native groups to fully reclaim their languages, it must be done primarily, if not entirely, by themselves. Assistance of any nature is good. However, unless the Native group wants desperately to keep its language alive, no amount of grant money, linguistic assistance or other help will do it for them. The self desire to keep the language must be nourished in people, because the obstacles of keeping a language alive are formidable and the odds remain highly in favor of failure. Only a strong amount of human will and spirit can tackle and succeed at preserving Native languages.

*--**Darrell R. Kipp** (Blackfeet), M.F.A, M.Ed., Director & Founder, Piegan Institute, Browning, Montana, and NMAI Project Senior Advisor on Language Models*

WHAT TO PRESERVE: A VIEWPOINT FROM LINGUISTICS

The first thing to decide, of course, is for whom, and for what purpose, are we preserving this material? I will presume that there are two purposes to the preservation of linguistic knowledge: for scholarship and for language revitalization. These two purposes are not necessarily distinct or conflicting, but they do have different implications for what is most important to preserve.

Here at the University of California at Berkeley, we have four large archives containing over a hundred years of California Indian language and cultural materials – written materials in the Bancroft Library and the Survey of California and Other Indian Languages, and audio-visual materials in the Berkeley Language Center and the Hearst Museum. Most of these archives continue to acquire material from Berkeley linguists doing fieldwork and, when offered, from linguists elsewhere or from Native Americans who have made recordings in their communities and wish to preserve them here. We accept language materials from any Native American language – all of which are either currently or potentially endangered. We are working to ensure that all the materials are safe, well-preserved and accessible to the people who want to use them. Intellectual property-rights issues are now looming large. I will discuss them briefly below.

Although most of the materials were collected by anthropologists and linguists, in fact today the archives are being used far more by Native Americans than by social scientists for purposes of language and

cultural maintenance and revitalization. As the languages of California head toward crisis – at least 35 of the languages for which we have holdings have no speakers left, and another 50 have only a few remaining elderly speakers -- these archives become more and more invaluable to people trying to keep or regain their languages and cultural traditions. The wordlists and dictionaries, grammars and texts collected in the past are often the only material left with which the communities can work to learn and attempt to re-establish their languages.

From the point of view of language, this kind of purpose exposes some holes in the documentation. While linguists did and still do a marvelous job of collecting a great deal of material on the grammar and vocabulary of California languages, and also stories, they generally failed to collect what today's Native scholars are most interested in: basic conversation. How do people greet each other? What are the "rules" of conversation? What kinds of small-talk do they do? What are the colloquialisms that they use? What role do facial expressions and gestures play in conversation? How does conversational style differ depending on sociolinguistic factors? For many languages which have ceased to be spoken altogether now, these questions will never be answered.

I don't want to seem overly-critical of linguists, partly because what they *have* collected is of such critical importance and value, and also because a very large part of our holdings were collected before good sound technology was available – and without sound or video recording, it was virtually impossible to record natural conversation. Luckily, now that sound and video recording is so advanced, some of the major linguistic documentation projects today, run by such agencies as the Volkswagen Foundation in Germany and the SOAS Endangered Languages Programme in the U.K., take very seriously the documentation of conversation and other language events.

A potential problem with conversation and other long language events is that it is critical that they be translated, or else they will be of little use in the future to Native or other scholars who do not speak the language of study. In our archives, we have quite a few recordings of stories that have never been translated, in languages that no longer have speakers. In order to record natural speech, the speaker should not be interrupted for translations as they go along, but must be allowed to complete the entire speech event before the collector tries to get a translation.

Typically, linguists later transcribe it, after which they go over it with the speaker or another person who speaks the language being studied, to get a word-for-word translation. This is long and arduous work; therefore many of these important recordings never get translated. Instead, I recommend a "two-recorder" approach to translation: after the story or conversation or other event is recorded, the collector plays the recording to a speaker a sentence or so at a time, while a second recorder is running, and the speaker translates each short sequence orally. The second recorder thus re-records the story along with its inserted translation, a phrase at a time. Perhaps later, the collector will be able to transcribe the recording and do a closer analysis, but, if it never happens, at least there is a translation!

Video-recording is another important new technology, which can record not only what someone says, but the gestures and facial expressions used and the audience response or interaction. Video-recording is thus critical for those who want to redevelop communication practices in their language.

For every language and every speaker of that language, it will be of great benefit to both scholarship and to the descendents of the speaker for the collector to record a good deal of personal information about the speaker. This could include a life history, at least a short one and, it is hoped, a long one.

Besides the raw linguistic materials collected over the years, a new item of interest for archiving is language teaching and learning materials produced for Native American languages. A vast array of Native American phrasebooks and dictionaries, workbooks, reference grammars, curriculum materials, reading materials and workbooks is being produced in California and elsewhere. These are done mostly by local Native teachers and education staff and sometimes by outside people hired by the tribe, working with Native speakers or, in more extreme situations, developing the materials from archival holdings. These pedagogical materials are deeply interesting and valuable. Language programs come and go, get funded, lose their funding, lose their staff and start up again when conditions are favorable. Often the

materials developed during the "up" times are sometimes lost or destroyed during the "down times." Archives should work to include all these materials in their holdings for the sake of preserving them for future use by the communities.

A major issue for archives is that of access conditions. Most of the older material was collected without any "contract" between collector and speaker about the future use of the material. As a public university, we want our materials to be accessible to anyone, for noncommercial purposes. But if the collector wants access restricted, does s/he have that right? If a descendent says that material collected from her/his ancestor should not be made available to other members of the tribe, does s/he have that right? What about sensitive material – sacred language and songs, songs that should not be transferred to other singers without permission from the previous singer – or injurious gossip? Should such materials exist in archives at all? If so, how should they be marked and who should have access to them? How long should restrictions last on these materials? These questions become even more pressing now that it is possible to put archival materials on the web for people to listen to and download without even visiting the archives. All these questions lead to a crucial task for archives in the future: there must be a contract with the speaker and collector that makes clear the access conditions.

To conclude, when focusing on languages, here is a brief checklist:

Exhaustive documentation of:

- Information about the speakers
- Vocabulary
- Grammatical information
- Conversation
- Stories, songs and other genres of speech, especially in their natural setting
- Videos showing gesture and audience participation
- Translations of all this material
- Learning and teaching materials for the language
- Contracts stating access policy of the archive and any restrictions that the parties want on the accessibility of the materials.

*--**Leanne Hinton**, Ph.D., Chair, Department of Linguistics, and Advocates for Indigenous California Language Survival, University of California at Berkeley, Berkeley, California*

WHAT ARE THE PRIORITIES? WHY PRIORITIZE?

The Indigenous Language Institute (ILI) is watchful of the short timeframe within which we must mobilize all efforts to help create new speakers of the endangered Indigenous languages. As this discussion is among colleagues involved in language preservation and revitalization, we do not need to reiterate the gloomy statistics of the language status. However, we must constantly remind ourselves that so many of the existing 175 languages may not be with us in a couple of decades. With all our concerted efforts, it is possible, and maybe we should dare to say, probable, that some of these remaining languages could survive and even revive. Therefore, our question to ourselves is not WHAT to preserve but rather, HOW to PRIORITIZE the process of planning a preservation program.

ILI's focus is to facilitate "revitalization and perpetuation" of these languages and, for so many languages, it is a critical race against time. Therefore, we are compelled to pay attention to the urgency of the situation. Here are three ways to organize the needed attention.

Documenting. Documenting the few remaining speakers of endangered languages must be an ongoing endeavor.

Transferring. Transferring the language skills and knowledge to as many people as possible must be accelerated.

Deepening. Deepening the knowledge of the language must be pursued.

From the perspective of language revitalization, the first priority is to ensure that there are ample resources for the "learners and teachers" of the languages. These resources -- human, intellectual, and material -- are the basis for developing culturally significant and appropriate and diverse materials in the language that will assist learners and teachers.

The heritage languages are now having to be "taught as a second language" in most cases, a situation that demands so many more tools, new skills and materials. There is a dire lack of materials in our Native languages. ILI focuses on helping to create a critical mass of materials in the languages in all media. We recognize that those who can create these materials proactively are the Native community people themselves. Effective materials draw upon the human, intellectual and traditional resources from within the community.

New Materials

There is a growing number of material in languages that have been produced during the 20+ years of the Indigenous language revitalization movement and this body of work is growing rapidly in recent years. ILI gathered some materials during its Field Survey Project (1999-2002) that are now in ILI's Reference Library, which is open to all Native nations to visit and glean ideas for creating language materials. It is ILI's goal to expand the collection to create a content-rich research library for all the Native nations and language communities.

There is a need to **train community practitioners** to systematically organize these materials to ensure their safety and accessibility to them. When the community practitioners are empowered with means and resources, one can expect a healthy increase in language materials. There is also a need to create a network for sharing these materials as models for all Native nations to refer to. Innovative ideas must be shared. Duplication of efforts must be avoided in concerted effort to accelerate the revitalization process.

*--**Inee Yang Slaughter**, Executive Director, Indigenous Language Institute, Santa Fe, New Mexico*

WHY PRESERVE ANYTHING AND OTHER QUESTIONS

In determining what to preserve, it is helpful to consider why preserve anything? And, who will be responsible for such preservation? For me, the question that precedes these is: What about documents and recorded materials that already exist?

I am assuming that there are at least two sources of materials that are the subject of Native language preservation. The first source is at the community level. The second source involves those materials stored in warehouses and institutional archives. Those kept at the community level could be anyplace.

With institutional materials, the better question is: Who organizes the materials for access? I suggest a two-pronged approach. The first approach would be for professional archivists to be employed to catalogue existing materials and make recommendations for procedures that will result in orderly access while protecting the materials. The second approach would be to encourage tribes to enact their own ordinances and codes that regulate access and control over the materials. Such an ordinance might be a Model Ordinance or Code asserting a governmental authority to address the matter of Tribal Intellectual Property Rights which would include access by non-Native scholars, among other things.

*--**Gerald L. Hill** (Oneida), Esq., Attorney At Law, Native Language Activist and Chair, Board of Directors, Indigenous Language Institute, Oneida, Wisconsin, and NMAI Project Advisory Work Group Member*

CHEROKEE NATION LANGUAGE PRESERVATION

The following is a brief description of how we will proceed as we begin archival activities for Cherokee language.

Cherokee Nation's long range Language Preservation Plan includes the following goals:

Document the language and develop curriculum;

Research and document older forms and the current form of the Cherokee language; and

Establish an archival system to preserve the different forms of the language for future generations.

The archival activities will be overseen by two advisory groups:

The Cherokee Nation Language Advisory Council – a tribally appointed group of master Cherokee speakers, many of whom are elders.

A Professional Advisory Committee – a group of professionals with research knowledge and experience in the areas of anthropology, administration, education, linguistics and other skills as needed by projects.

Method and Selection of Material: Cherokee Nation wishes to address the preservation and revitalization of the Cherokee language by conducting fieldwork to document language variation to produce new cultural materials in the Cherokee language, and by establishing methodology for the archiving of language materials in print and multimedia formats. The objectives are as follow:

1) collect data that will address perceived variations in the language from Cherokee speakers;

2) gather information that captures culturally-embedded ideas about Cherokee concepts and practices;

3) identify, collect, and centrally locate the many scattered Cherokee language materials, both about and in the language; and

4) establish an infrastructure within the Cherokee Nation for collecting and archiving language materials.

*--Dr. **Gloria E. Sly** (Cherokee), Director, Cultural Resources Center, Cherokee Nation, Tahlequah, Oklahoma, and NMAI Project Advisory Work Group Member*

COMANCHE LANGUAGE PRESERVATION AND NEW MEDIA TECHNOLOGY

The Comanche Language is a linguistic branch of the Uto-Aztecan language phylum. Dialects of the language are spoken in regions throughout North and South America. Preservation of language is an inherent component of being Comanche. The Comanche Language was the lingua franca in trade and negotiations with neighboring tribes, Spanish officials, French officials, United States officials, settlers and expeditions passing through Comanche territories from the 16th to the 19th Centuries. The written language is phonetically derived and has been used and recorded since the first contact with Spain, sometime around 1500.

The Comanche people have been identified as such for approximately 500 years, a short period in the long history of the People. In the Native tongue, the Comanche are *taa Numunu*, Original People. Histories of the people have been recorded in the oral traditions, paintings on canyon walls, beaded objects, painted hides, canvas, bone, wood and by descriptive characterizations in the language of other tribal nations.

Comanche language preservationists look at all physical material records of the language, such as rock art, photographic imagery, audio/video recordings and phonetically recorded writings. The importance of collecting and reviewing these types of materials is a key in the preservation of the language, as well as continued use and teachings within the tribal community. Language use changes through time while continuing to provide a root of understanding and a link to the past, present and future relationships of a tribal community. Collected materials of the Comanche language cover centuries in time and have been derived from traders, foreign governments, religious groups, families and individuals.

The reservation of the Comanche Nation is in Oklahoma, where language is taught at the pre-kindergarten, high school and college level. Classes are also being held by independent parties and groups throughout the community.

The Comanche Language Preservation Organization (http://www.comanchelanguage.org) relies on individual tribal members, families, outside sources and recorded materials to teach and preserve the language.

A number of individual Comanches are working on independent language preservation projects. Several of these individuals are looking at new ways to communicate, teach and preserve the language using digital technology and multi-media tools.

Anthony Deiter (Plains Cree), New Media Specialist, and I have worked on and produced a Comanche language prototype. *"A Comanche Narrative"* is a two-minute, animated DVD audio recording with a three-dimensional character and texts in Comanche and English. It was produced within two weeks of conception and incorporates the latest in state of the art, new media technology. We paired a 3-D character with a creation story to produce an interactive end product. Modern technology enables one to use an image of a person, object or animal for digitization and animation that can provide a bridge to language and other forms of cultural preservation.

For example, the Comanche Nation Language Preservation Organization produced a VHS on the Comanche story, "How the Grasshopper Got its Coat of Color," by enlisting an artist to produce a rendering of the grasshopper as a two-dimensional backdrop for filming, while a Comanche Language speaker told the story. With this new technology, we can take that story to a new level and have the grasshopper moving as a three-dimensional character, telling the story in Comanche.

The advantages of this new form of teaching and preserving language are many. For instance, one can link up to an online language program and/or database. If people are unable to attend a language class because of distance, time constraints, family responsibilities or other reasons -- such as the preference of learning from an instructor with a particular dialect -- they can use this 3-D multimedia tool and learn within their own time frame. With this option, the individual can pause, slow down, fast forward, rewind or completely stop while interacting with the character or characters.

Interactive technologies are paving the way for dynamic presentations and providing learning institutions with a powerful and effective teaching tool, by providing basic, intermediate and advanced students the opportunity to progress within their own time frame. Interactive technologies can provide individuals and organizations the necessary visual tools and cues that make for a more successful learning experience.

With this new technology, there are no limitations to any one aspect of teaching languages and preservation. Teachers can use it in their efforts to preserve language. The sky is the limit in regard to the number of options available to the viewer. Options that can be designed for prototypes such as *"A Comanche Narrative"* include role playing and real time inter-activity. With the click of a mouse, we have the ability to immediately access cultural databases and can use new media as a powerful preservation tool.

--***Jimmy Arterberry*** *(Comanche), Medicine Park, Oklahoma, NMAI Project Advisory Work Group Member*

SANTA CLARA PUEBLO'S TEWA LANGUAGE PRESERVATION OBJECTIVES

Those of us involved in Tewa Language preservation efforts are often divided amongst ourselves about which strategies and techniques we should use to keep our language alive as prescribed normative community speech in the homes, in business, in our schools and even at the Tribal Offices. We find ourselves facing (and sometimes denying) the bitter truth that our language has lost its "natural structural" place in our culture.

More often than not, we count on the use of English to carry out even the most sacred of our community affairs. With the preferential use of English comes the accompanying absence of traditional behaviors (e.g., often we forget to address an elder in formal Tewa). At the same time that we are participating in the continued decline of the power of Tewa, by not using the language at home and other community areas, we are struggling to find a way to reincorporate Tewa language into those places.

The Santa Clara Tewa Language Committee has held many meetings under an ANA grant specifically for the purpose of planning strategies for resumption of language classes in the community. When there is no money from a grant, the work to restore use of the language wanes. Such work is left to the educational expertise of elementary school teachers who find they must teach Tewa as a second language to the children because there are not enough trained Tewa Native speakers available for every classroom.

In 2001, the Santa Clara Pueblo Governor signed a resolution that states:

> "in order for the Tewa language to survive as a primary language, Tewa must be implemented within all the learning environments of the Pueblo, including the homes and educational institutions of Santa Clara Pueblo."

The proclamation was followed by five (5) laudable, but unenforceable objectives, all of which would require cooperation from and participation by all community members: from parents of newborn infants to elders, school teachers and all others living at home. The "Tewa Language Preservation Plan" developed by the Tewa Language Committee followed the Tribal Councils' supporting resolution and has as its objectives:

> Provide training in language immersion instructional methods;
> Provide Tewa language instruction to preschool age Santa Clara community members;
> Provide Tewa language instruction to students in the Santa Clara Day School;
> Provide Tewa language classes for the community; and,
> Integrate the knowledge of Santa Clara Pueblo elders into all aspects of Tewa language preservation.

Various efforts to achieve the five objectives have been tried during the past three years; even a demonstration instructional CD was made as an example of a new learning tool that could be used in the BIA elementary school and homes.

Developing objectives is easy; next it is imperative to develop a language policy acceptable to the tribal government that stipulates who can learn and who can teach the language and what the lessons must contain. This policy matter corresponds to a 2002 urgent call from state departments of educations and legislatures for memoranda of understanding based on the recognition of "the unique role of Indian communities in establishing standards and criteria for, and determining competency of persons seeking Certification in Native American Language and Culture, K-12". The Governor of Santa Clara Pueblo and the New Mexico Secretary of Education both signed such an agreement in December 2003. The Memorandum allows Santa Clara schools to use ANA grant-funded community language specialists to provide language instruction. This is done on a part time basis in collaboration with certified teachers.

The content of the instruction modules is good, but the brief instructional presentations do not by themselves create Tewa fluency, any more than learning any other language is accomplished without some degree of immersion. The Tewa lessons are interspersed with standard instructional modules in math, social studies, English grammar, etc. We need consensus from a majority of community members of all ages that Tewa is going to remain our everyday language before these remedial measures can succeed in keeping our language alive. Currently, in all domains (home, school, work), the amount of time devoted to Tewa is insufficient to sustain the structural requirement for Tewa to reproduce itself over the generations.

We have moved from a culture of consensus, functioning under the direction and guidance of moiety leaders, tribal council leaders and the tribal governor, to a community characterized by increasing numbers of members who are individualistic in outlook. Even those elders who lament the loss of Tewa and sometimes long for the ways of our ancestors, act out in forgetful ways in their speech and interpersonal behavior, speaking English to their grandchildren, nieces and nephews. Even though the Council passed the strong language preservation resolution in 2001 demanding conformity to a standard of language usage, in these days community members dismiss the power of the Council to dictate our behavior. How can we achieve a majority voice for the preservation of our language when even our arguments, our tribal business meetings, are held in English?

To keep our language alive, we must face the fact that we must teach it as a second language, in school or after-school programs. Those with even rudimentary fluency must take every opportunity to engage each other in Tewa. We also must greet one another and especially our officials and our elders in Tewa. And, of increasing importance, we must practice remembering stories told to us in Tewa by our parents, grandparents and others, writing down or otherwise recording what we remember, in order to help build the archive of our cultural capital. We must take all measures possible in order to assure that our language and the knowledge that it holds will be transmitted through the generations to come.

Suzan Harjo asked me to write about what "Santa Clara Pueblo and its heritage language speakers consider important to preserve and how they arrived or are arriving at that decision." What I have written above is based on my observations of changes occurring in the culture of my community over the past four decades. I have talked with revered elders, members of my family, members of the language committee, teachers in the schools here and others about our shared concerns over language loss and efforts to restore Tewa to everyday use. What I have written above is my opinion of the way things have come to be at Santa Clara Pueblo in regard to language preservation. In other words, there are really no answers to be given at this time to the questions Harjo asked.

The larger question, "What to Preserve?..." has only one answer: everything we have left, everything we can remember. We have much work to do and so little time.

*--**Tessie Naranjo** (Tewa), Ph.D., Cultural Research Independent Consultant, Santa Clara Pueblo, Espanola, New Mexico, and NMAI Project Advisory Work Group Member*

PRESERVING SPECIFIC NEWSPAPERS, DICTIONARIES AND OTHER COLLECTIONS

I would like to see what the Hawaiians have done for their Nineteenth Century Hawaiian language newspapers done for the Navajo, Dakota Sioux, Cherokee and other tribes. During World War II, there was a Navajo language newspaper printed. This newspaper should be archived by the National Museum of the American Indian (if copies can be obtained), indexed and put on the web so it can provide reading material for Navajos learning to read their language. A similar archive of Native language stories should be started; beginning with those that could be put online, such as the bilingual Indian Life Series published by the United States Indian Service in the 1940s.

Other materials that could be indexed and put on the web include missionary dictionaries, such as the 1852 Grammar and Dictionary of the Dakota Language, missionary newspapers such as IAPI OAYE (The Word Carrier) from the late 18th century and material from Indian Territory. The Rev. S.A. Worcester (of

the famous Worcester vs. Georgia Supreme Court case) reported printing 1,025,000 pages on his printing press in Indian Territory in the 1855 Annual Report of the Commissioner of Indian Affairs, including bilingual Almanacs.

Of more recent material, I would like to see the extensive material produced in the 1970s by the Navajo Reading Studies Project be made more accessible to schools. One example of what can be done in terms of cataloging Native language material is the Database of Native American Literature at http://oak.ucc.nau.edu/wen2/lib/, which was produced with a small grant from the U.S. Department of Education.

--***Jon Allan Reyhner****, Ph.D., Professor of Education, Northern Arizona University, Flagstaff, Arizona, and NMAI Project Advisory Work Group Member*

PRESERVATION OF HISTORY AND THE ARCHIVES AT HASKELL INDIAN NATIONS UNIVERSITY

(*A 2003 agreement provides for an archival records management studies program to be jointly developed by Haskell Indian Nations University in Lawrence, Kansas, the Department of the Interior and the National Archives and Records Administration. The Memorandum of Understanding, signed by Archivist of the United States John W. Carlin and Interior Secretary Gale A. Norton, established a national repository for American Indian records to be maintained at a regional records service facility of the National Archives in Lenexa, Kansas. The agreement intends that the highest standards will be observed in the preservation and protection of American Indian records, including fiduciary trust records.*)

Haskell Indian Nations University's vision is to become a national center for American Indian research, education and cultural programs. As part of this effort to become a national center, Haskell has opened to the public its historical museum and archives collections. The Archives at Haskell are housed in the new 6,000 square foot Cultural Center and Museum on campus. The archive is a state of the art facility complete with climate control and storage technologies. Our archives are important to us in that they include art, artifacts and printed materials about the history of Haskell from its inception as a boarding school in 1884 to the present. It represents the academic, personal stories and contributions of our students and faculty, both past and present.

The Haskell Archives collection consists of archival documents such as administrative records, history books, student rosters, theater and music programs, photographs, films and videotapes of Haskell events, and the student-run *Indian Leader* newspaper and yearbook. Because we originally didn't have storage facilities, many of our past records are stored in the National Archives facility in Kansas City, Missouri, and we are looking at ways of getting those back and adding them to our collections. We believe it is important to save what students and faculty have done and continue to do academically, as well as to preserve their personal stories.

The materials left by past students and families were donated with the intention that they would always stay at Haskell and with the intention for others to see, learn from and provide inspiration. It is meaningful that we have a place now to store them.

We receive many inquiries from family members and researchers asking us about alumni and, as a result, play a big role in genealogy questions. People also look to us to store other collections. We recently had a photojournalist from the San Francisco Examiner requesting to store the paper's collection of Alcatraz occupation photographs. We are able to handle many requests, but we are running out of space and are developing long-range plans to expand the Cultural Center and Museum to handle such requests.

Perhaps the greatest benefit of our Archives is for the student workers to become familiar with the collections and spread the word of the wealth of information we have to offer. Many students in turn utilize our collections to do special projects. For instance, one student is working on a project on sports history here at Haskell. Another example is our Reinhart Historical Photograph Collection, which provides

students with the research capability to write historical papers and essays, and provides inspiration for creative writing and art exhibits.

We are also involved in building up our extensive video archive with recordings of elders and veterans. The interest in veterans is tremendous. Many people want to donate letters, artifacts, uniforms, photographs and memorabilia of their veteran family member who attended Haskell. This is very interesting in that, like many Indian boarding schools, Haskell was run like a military institution for many years and students wore military uniforms and many of our alum became veterans. We have this growing military history that we are documenting and preserving. So this is coming full circle.

We are in agreement with the importance of language preservation. At present, the only language taught at Haskell is Cherokee. We are, however, in the exploratory stage of developing a stronger language component to our curricula. It is problematic that, while Haskell is an intertribal institution with over 140 tribes represented from over 35 states, finding qualified instructors is daunting. However, many of our students are bilingual. We are the only place in the nation that can boast so great a diversity of languages and cultures. We are in the initial process of moving Haskell to become a center where people can come and study language and conduct research in cultural preservation and restoration. In our Spring Convocation this past January, 2005, three officers of our Student Senate gave a simultaneous address in Navajo and English to welcome new incoming students. This moving ceremony demonstrated who we are: We are Native AND Contemporary.

*--Dr. **Karen Gayton Swisher** (Standing Rock Sioux), President, Haskell Indian Nations University, Lawrence, Kansas, and NMAI Project Advisory Work Group Member*

SURVEY OF NATIVE LANGUAGE PROGRAMS AND ARCHIVES IN CALIFORNIA

The Center for Indian Community Development interviewed twenty-eight (28) tribes in California, regarding languages archives repository and what to preserve. Tribes had several approaches to archives and preservation, as well as ideas on what language documentation and archiving included. Generally there is a consensus that tribes want a comprehensive, inclusive, wide-ranging and broad record of the linguistic practices of their communities. They want to capture the "observable linguistic behavior" -- that is, those everyday interactions between people of their tribes. They want to secure those documents and articles that interpret language and events, and they desire to have language descriptions that are the record of the language.

Examples of the above include materials developed for language classes, CDs, documentaries on DVD or VHS about cultural activities, photographs, manuscripts, audio recordings, movies, field recordings about Indian languages, maps, field notes, correspondence, folktales, interviews and oral histories, text databases, primary data and analyses, education materials, teaching materials, newspapers, poetry and literature, protocols, basic grammars and lexicons, dictionaries, grammars, written materials, unpublished manuscripts, word lists, texts, publications, software and microfilms. Tribes are interested in having access to virtually everything written or recorded or developed about their tribe.

Their concerns include:

- Having an on-site repository located within the tribal community
- A national or regional repository site that has easy access and distribution
- Facilities for a repository that meets industry standards
- Cost for development, building and maintenance of such facilities
- Funding opportunities and sources for such an endeavor.

*--**Lois J. Risling** (Hoopa, Yurok & Karuk), Director, The Center for Indian Community Development, Humboldt State University, Arcata, California, and NMAI Project Advisory Work Group Member*

2004 CALIFORNIA LANGUAGE PROGRAMS

(Information compiled between July – October 2004)

Cahuilla Language

Agua Caliente Reservation, 600 E. Tahquitz Canyon, Palm Springs, CA 92262-6706, Museum Telephone: 760-778-1079, Contact: O'Jay Vanegas, Education Director, ovanegas@accmuseum.org
Agua Caliente has language classes, learning station, language CDs, documentary on DVD & VHS, primary focus is on Bird Songs but language is such a big part of cultural activities. Tribe has an archive and a place to store language materials.

Morongo Reservation, 11581 Potrero Road, Banning, CA 92220, Telephone: 909-849-4676, Fax 909-849-6306, Contact: Ernest Fiva, Fluent elder/teacher, 9570 Mias Canyon, Banning, CA 92220
Morongo teaches language classes in the community.

Chumash Language

Santa Ynez Reservation, Education Department, Language Program, P.O. Box 517, Santa Ynez, CA 93460, Telephone: 805-688-7997 Fax: 805-686-9578, Contact: Dr. Frederick Loveys (from England), Director of Education floveys@santaynezchumash.org.
Offers children's class, a Chumash Dictionary is in the planning stages and will include a children's edition. Materials are kept in education office and are loaded onto the computers in the Lab. All tribal (and community) members have access to web site www.chumashlanguage.com and participants receive a full CD of classes. Referred me to Dr. Richard Applegate, expert academic who is at Santa Rosa Community College – richard@jamarta.com.

Cupeno Language

Pala Reservation Culture Center, P.O. Box 445**,** Pala, CA 92059**,** Telephone: 760-742-1590, Fax: 760-742-1411**,** Contact: Leroy Miranda, Culture Director & Vice-Chair of Tribe
Tribe has actively been gathering oral and traditional information since 1994. Language classes are offered in the community. Sometimes will have language activities with the children in childcare, also sponsors language events. About 5 fluent Cupeno speakers. Tribe has a designated storage area in its archives for language materials.

Diegueno Language (also known as Kumeyaay)

Santa Ysabel Reservation, P.O. Box 130, Santa Ysabel, CA 92070-0130, Telephone: 760-765-0845 Fax: 760-765-0320, Contact: Brandy Taylor, Tribe Vice-Chair
Language classes are offered once a week with mostly adults attending. Tribe has a language dictionary. No formal tribal archive. There are approximately 20 fluent speakers.

Hupa Language

Hoopa Valley Tribe, Tribal Museum, P.O. Box 1348, Hoopa, CA 95546, Telephone: 530-625-4110 Fax: 530-625-1693, Contact: Billy Carpenter and Salish Jackson, Hoopa Tribal Museum
Language classes are offered in the community, through the JOM program, Head Start, elementary & high school, and at the summer camps. Tribe has participated in the Master-Apprentice teams over the years as well as developed language CDs, VHS, cassette tapes, dictionary, and various language books. Tribe has an archive.

Karuk Language

Karuk Tribe, Language Program, P.O. Box 1016, Happy Camp, CA 96039, Telephone: 1-800-505-2785, ext.2205, Contact: Susan Gehr, Language Program Director, sgehr@karuk.us

The program has developed materials for Head Start, elementary, and high school, teacher trainings, community classes, Head Start, and summer camps. Language books, web site, conversational language books. Tribal members have participated in the Master-Apprentice teams. Tribe has an archive. Fewer than 10 fluent speakers.

Quartz Valley Indian Reservation, JOM Program, P.O. Box 24, Fort Jones, CA 96032, Telephone: 530-468-5907, Fax: 530-468-5908, Contact: Homer Bennett, JOM & Frieda Bennett, Education Coordinator
The cultural program and language classes are in the beginning phase of a grant with the focus on 3-18 year olds as long as they are attending school. There is a program being developed for community classes. No archive.

Kumeyaay Language

Manzanita Reservation, P.O. Box 1302**,** Boulevard, CA 91905-0402**,** Telephone: 619-766-4930, Fax: 619-766-4957**,** Contact: John Elliott, Tribal Council Member
Manzanita has a language program, with no formal classes right now, but they are continuing their documentation phase of cultural information with the recording of elders about cultural knowledge and language. Although many of their elders know some of the language, there is only one fluent Kumeyaay speaker.

Southern California Tribal Chairman's Association, 10975 Pala Road**,** Pala, CA 92059**,** Telephone: 760-742-8600
The Association sponsors the Kumeyaay Talking Class that is open to the local Indian community.

Viejas Reservation, 19862 Viejas Grade**,** Alpine, CA 91901**,** Telephone: 619-659-9377, Fax: 619-445-5337**,** Contact: Charlotte Ochiqui, Language Program Coordinator, cochiqui@viejas.org.
Community language classes with the elders; there are approximately 13 fluent speakers.

Luiseno Language

Pechanga Reservation, P.O. Box 1477**,** Temecula, CA 92593-1778**,** Telephone: 909-506-9491, Fax: 909-506-9491
Culture Department: 909-308-9295, Contact: Gary DuBois, Culture Resources, Gary@pechanga.org
Pechanga has a language program, community classes, developing language database, no formal immersion but language is an integral part of charter school. They also teache language to the Head Start program, two preschools, and the kindergarteners, and are hoping to introduce language curriculum for the first graders this year. Erick Elliot is an applied linguist who studied Luiseno, Cupeno, and Serrano while a student at University of San Diego, and has developed language dictionaries. Currently Erick Elliot helps with the language efforts of the tribe and has office space in the charter school.

Pauma and Yuima Reservation, P.O. Box 369, Pauma Valley, CA 92061-0086, Telephone: 760-742-1289, Fax: 760-742-3422, Contact: Wanda Manhole
The program has on-going language efforts, primarily the Tribal Digital Village Project that includes language recordings.

Soboba Reservation, Soboba Cultural Center**,** P.O. Box 487**,** San Jacinto, CA 92581-0487**,** Telephone: 909-654-2765, Fax: 909-654-4198**,** Contact: Charlene Ryan, cryan@soboba-nsn.gov
Soboba has a language and culture program, and have received a language planning grant and are in the process of developing language program. The programs are open to tribal community; conversational language class for community, CD with 4 short language lessons, and special community language activities. Culture and language program are planning to prepare a Luiseno conversational handbook. Cultural center/library stores all language materials.

Maidu

Mooretown Rancheria, Cultural Programs Office**,** No. 1 Alverda Drive**,** Oroville, CA 95966-9379**,** Telephone: 530-534-4305
Language: Concow Maidu

Miwuk Language

Federated Tribes of Graton Rancheria, P.O. Box 14428**,** Santa Rosa, CA 95402**,** Telephone: 707-566-2288, Fax: 707-566-2291**,** Contact: Jane Hartley, Language Administrator
Language: Coast Miwuk
Graton Rancheria is currently in the planning phase of language grant and recently had a weekend language gathering but no formal language classes. Plans to produce CDs with written materials (implementation phase) and put on-line bibliography of language information. Archive is closed right now – only in the planning phase of grant. Has been working with Dr. Katherine Callahan from Ohio State University, she is the linguist who has produced all 6 Miwuk dictionaries amongst the various Miwuk dialects. They are currently working on producing a normalized version dictionary by the end of the August 2004.

Paiute Language

Bishop Reservation, Paiute Language Center, Nuumu Yadoha Program, 50 N. Pa-ha Lane, Bishop, CA 93514, Telephone: 760-873-5107, Fax: 760-873-4107, Contact: Russ Ames & Jamie Meredith, j_meeeee@yahoo.com
The Center teaches Paiute language classes to the entire Owens Valley area. Classes are offered to the community, in the high school classes, daycare classes, just about wherever there is an interest among tribal people in Owens Valley. The language program is interested in any recommendations that the repository project team has about best practices and guidelines for permission. The program would also like to be kept informed of the language repository project progress. Tribe has an archive where they can store their language materials. Not more than ten fluent speakers.

Bridgeport Indian Reservation, P.O. Box 37**,** Bridgeport, CA 93517-0037**,** Telephone: 760-932-7083**,** biclanguage@yahoo.com**,** Contact: Georgia Grace-Dick, Language Coordinator
Language classes started in early 2004, teaching classes at all levels every week (beginners/intermediate/fluent). Classes are open to adults and children with mostly adults attending. Approximately ten fluent speakers. They are working on creating a tribal archive.

***Also Susanville Rancheria, see information under Washo Language section**

Pomo Language

Big Valley Reservation, 2726 Mission Rancheria Road**,** Lakeport, CA 95453**,** Telephone: 707-263-3924, Fax: 707-263-3977**,** Contact Person: James Bluewolf, ANA Grants Coordinator
Language: Eastern Pomo
The language program offers weekly language classes and the program is just beginning to design a component for children. Currently they have half-hour classes, which include pizza, language, and games. A youth education program will be starting that will integrate language into the curriculum. Long-term goal is to develop a language program that could possibly develop into a language school. Working on a video project where they record the children pointing to body parts and saying the words in Pomo. The videos are then sent home in hopes that the parents will want to watch their children and in the process pick up some of the vocabulary. The new language lab that is currently under construction will be the primary storage place for their language materials that are developing. Big Valley received a three-year ANA grant for the preservation and revitalization of the language with the goals of producing 40 fluent speakers, a number of media projects that include setting up a language lab, producing videos, DVDs, CDs, CD-ROMs, interviews with speakers and dormant speakers, the creation of their own alphabet and trying to develop a fluency guide. By developing their own fluency guide they will be able to determine for themselves who is fluent in their language. There will be different levels of fluency. When Big Valley originally applied for the ANA grant they had four fluent elderly speakers and now that they

have finally received the grant, there is only one elderly speaker. They are in the process of trying to interview that elder as much as possible.

Coyote Valley Reservation, Education Department**,** P.O. Box 39**,** Redwood Valley, CA 95470**,** Telephone: 707-485-8723, Fax: 707-485-1247**,** Contact: Iris Martinez, Education Department and an Indigenous Language Program Board Member.
Language: Northern Pomo

Elem Indian Colony, P.O. Box 989**,** Clearlake Oaks, CA 95423**,** Telephone: 707-998-4100, Fax: 707-998-1900
Tribal member Robert Geary has been volunteering his time working with the elders, learning different Pomo dialects, in the planning/organizing phase of getting a language program started. Robert Geary is also working with Robinson Rancheria with getting their language program up and running.

Lytton Rancheria, 1250 Coddington Center, Suite 1**,** Santa Rosa, CA 95401**,** Telephone: 707-575-5917, Fax: 707-575-6974**,** Contact: Lisa Miller
Has a language workshop 2 times a month open to the community.

Manchester-Point Arena Rancheria, P.O. Box 623**,** Point Arena, CA 95468**,** Telephone: 707-882-2788, 707-882-2346, Fax: 707-882-3417**,** Contact: Darnell White
The Rancheria has a fluent elder who works for the tribe teaching language classes.

Potter Valley Tribe, 112 N. School Street**,** Ukiah, CA 95482**,** Telephone: 707-462-1213, Fax: 707-462-1240
Contact: Michele Curley, Language Program
The tribe is in the planning phase of a language program and is interested in all language materials.

Redwood Valley Reservation, 3250 Road I**,** Redwood Valley, CA 95470-9526**,** Telephone: 707-485-0361, Fax: 707-485-5726**,** Contact: Erika Estrada, Language Coordinator
Language classes are taught in the preschool, elementary school and in the community. Redwood Valley will be building a language library/resource center, which will serve as the tribal archive for language materials.

Robinson Rancheria, Education Department**,** 1545 E. Highway 20**,** Nice, CA 95464-1119**,** Telephone: 707-275-2002, Fax 707-275-2151**,** Contact: Robert Geary, Tribal Youth Program Coordinator
Robinson Rancheria is starting language classes in the community and is looking for any information regarding language.

Sherwood Valley Rancheria, 190 Sherwood Hill Drive**,** Willits, CA 95490-4666**,** Telephone: 707-459-9690, Fax: 707-459-6936**,** Contact: Barbara Pineda, Education Coordinator
The language program is just starting with language classes at the Learning Center. Plans to work with children first and then expand the language classes to include the adults. They are interested in language grants and any language information. No formal tribal archive.

Quechan Language

Fort Yuma Quechan Indian Nation, 350 Picacho Road**,** Winterhaven, CA 92283**,** Telephone: 760-572-2969**,** Contact: Barbara Levy, Environment Department
Language: Quechan/Yuma
Quechan has classes in the community, all ages and levels and is developing curriculum and an archive.

Tolowa Language

Smith River Rancheria, 250 North Indian Road**,** Smith River, CA 95567**,** Telephone: 707-487-9255, Fax: 707-487-0930**,** Contact: Brock Richards, Environmental Protection Department

Tribe is in the planning phase of language grant. Tolowa language classes taught in the high school by tribal member Loren Bommelyn, and some language taught in the Head Start program. Tribe has a digital archive project that includes language and tribal members have participated in the Master-Apprentice teams. Approximately 3 fluent speakers.

Washo Language

Susanville Rancheria, Indian Education Center**,** 745 Joaquin, P.O. Box Drawer U**,** Susanville, CA 96130-0457**,** Telephone: 530-257-6264, Fax: 530-257-7986**,** Contact: Zalerie Phelps
Languages: Maidu, Pit River, Paiute and Washo
The summer program had 5 language teachers working with younger children teaching them the basics. In the winter they plan on working with the adults in Northern Paiute doing storytelling. They have held workshops with language people but considers language program in the beginning stages. Wants to be kept informed of repository findings and would like any research assistance, especially with the Maidu and Pit River languages since there is not much out there. Very concerned about the Maidu language, the last speaker is an elderly man. Northern Paiute and Washo have younger teachers. A Paiute teacher from Pyramid Lake, NV was teaching some classes for their program.

Washoe Tribe
Washoe Language Program, 1557 Watasheamu Drive, Gardnerville, NV 89464, Tribal Office: 775-265-4191, Telephone: 775-265-7274, Fax: 775-265-6240, Contact: Lynda Shoshone, Language Coordinator/President of Inter-Tribal Council of CA, Email: washoschool@aol.com
The tribe has language classes in the community and with the younger kids. No archive yet but interested in learning about ways to preserve language materials.

Wintun Language

Indian Cultural Organization, Wintu Language Project**,** 14840 Bear Mountain Road**,** Redding, CA 96003**,** Telephone: 530-275-2737**,** Contact: Mark Franco, President, winnemem@msn.com
Beginning phase of language program with the emphasis on learning and preserving as much as language as possible, especially the prayers for ceremonies.

Rumsey Rancheria
Yocha De He Prepatory School, P.O. Box 160**,** Brooks, CA 95606**,** Telephone: 530-796-2270**,** Contact: Nancy Remington, Director/Principal
School serves infants/toddlers, primary grades 3-6, secondary grades 7-12 and independent studies for community members. Will be having two Wintun elders, one is a Cortina Rancheria Tribal Member and the other is a Rumsey Rancheria Tribal Member. In their American Studies Program, which is once a week, they will be having their elders come in and do some language work with their students.
***Also Susanville Rancheria, see information under Washo Language section**

Wiyot Language

Table Bluff Reservation, 1000 Wiyot Drive**,** Table Bluff, CA 95551**,** Telephone: 707-733-5055**,** Contact: Marnie Atkins
Active language revival efforts, no known speakers but are reconstructing language through archival materials.

Yokut Language

Tule River Reservation, Language Program**,** P.O. Box 589**,** Porterville, CA 93258-0589**,** Telephone: 559-781-4271
Contact: Nicola Larsen, Eagle Mountain Casino, 559-788-6220
Program holds language classes in their community on Saturdays. Will be setting up a tribal archive in early next year, will have a space for language materials.

Yurok Language

Yurok Tribe, Language Program**,** P.O. Box 1027**,** Klamath, CA 95548**, T**elephone: 707-482-1350, Fax: 707-482-1377**,** Contact: Barbara McQuillen, Language Director
There are regular community classes in the two counties in the surrounding regions, Klamath, Weitchpec/Johnson area, Arcata, and Crescent City. The Yurok Tribe language program teaches the language although there are informal groups who gather to practice the Yurok language. In the summer time language is taught at local summer camps, the Yurok Tribe JOM summer camp focuses on language activities, Head Start teaches the basics. Margaret Keating Elementary School and the Weitchpec Elementary School also teach Yurok. Tribe has an archive and has an area to store their language materials. There are approximately 11 fluent Yurok speakers.

No Language Programs - California Tribes
(Information compiled between July – October 2004)

Alturas Rancheria -- Vi Riley, Cultural Committee
Auburn Rancheria -- Monika Birseno, Education Program Coordinator. No program.
Augustine Reservation -- Mary Ann Martin. No language Program.
Barona Reservation -- No reply.
Benton Paiute Reservation -- No language program, referred to Paiute Language Center in Bishop.
Berry Creek Rancheria -- No language program right now but does have a cultural committee. Referred to Mooretown Rancheria.
Big Lagoon Rancheria -- No language program.
Big Pine Reservation -- Referred to Career Development Center in Bishop.
Big Sandy Rancheria -- Andrew Bustamente. No language program but they are really interested in working with language. Tribe was involved with language efforts in the past.
Blue Lake Rancheria -- No language program.
Buena Vista Rancheria -- No language program.
Cabazon Band of Mission Indians -- Judy Stapp, Cultural Affairs Liaison. No language program but there is an awareness of language when doing other cultural activities, e.g. Bird Songs. Believes Tribe needs to proactively fund these projects before we don't have anything left to preserve. Preservation of language is crucial to all cultural projects. Tribe does have an archive in the museum. Tribe is interested in Cahuilla language materials.
Cahuilla Reservation -- Anthony Madrigal, Jr. – Tribal Council Member. No classes. Members can join the classes sponsored by Agua Caliente Tribe. No archives but tribe is looking into developing one.
California Valley Miwok Tribe -- Tiger Paulk. No classes or program but there are informal tribal efforts. Chairperson has interviewed elders and has created some audio language materials. The Chairperson's mom is also fluent. Small tribe, only 5 members.
Campo Indian Reservation -- No language program.
Capitan Grande Band of Mission Indians -- No reply.
Cedarville Rancheria -- Dana Knighton. No classes or language program but wants to start classes among the young people. Would like grant information. Not sure if they have an archive. N. Paiute
Chemehuevi Reservation -- Tito Smith, Chairman. No language program at the present time but tribe does have a cultural committee.
Chicken Ranch Rancheria -- Not interested in language.
Chico Rancheria -- Arlene Ward, Cultural Liaison. No language program.
Cloverdale Rancheria -- No language program.
Cold Springs Rancheria -- No answer.
Colusa Rancheria -- Don't know of any language efforts or plans. Faxed information to be passed along to Shannon Morgansen, Executive Secretary.
Cortina Indian Rancheria -- Working on a grant to get a language program started.
Cuyapaipe Reservation -- No program.
Dry Creek Rancheria -- Bert Barnes, Programs Manager & Dave Workman, Grant Writer. Trying to get a grant to start a language program. Has a cultural committee, will pass along information.
Elk Valley Rancheria -- Wanda Green, Tribal Library. No language program. Referred to Yurok Language Program.

Enterprise Rancheria -- No language program.
Fort Mojave Reservation -- Linda O'Tero, Cultural Program. Does cultural activities; sometimes has language but not really the focus of program.
Greenville Rancheria -- No language program, referred to the Round House Council, they are doing some stuff with Maidu language.
Grindstone Indian Rancheria -- No current program.
Guidiville Rancheria -- No current language program.
Hopland Reservation -- Education Director – no language program. Approximately 3-4 speakers. Was told that Potter Valley is doing language and that Pinoleville has language in preschool.
Inaja-Cosmit Reservation -- No language program. Referred to Southern California Tribal Chairman's Association, they sponsor the Kumeyaay Talking Class.
Ione Band of Miwok Indians -- Christine, Heritage Culture Committee. Will present information to heritage culture committee. They are looking into language. No program or classes.
Jackson Rancheria -- No program.
Jamul Indian Village -- No response.
La Jolla Reservation -- Tracy Nielson, Chairman. Tribe began a culture committee in the summer of 2004. Working on Birdsongs is the priority right now but they are also interested in their language. Currently gather for culture nights where they practice learning their songs. Jimmy Trujillo from the culture committee should be informed of anything concerning Luiseno materials. Through the education department there are some teachings of the language, in the Head Start program the basics of the Luiseno language are taught. No archive, no time to do that. Not really very many speakers left, a few .
La Posta Indian Reservation -- Referred to Kumeyaay Community College, they offer Kumeyaay language classes.
Laytonville Rancheria -- Atta Stevens – Two fluent speakers, one of whom is Atta's Aunt. No formal classes or program but is interested in working with those who may help to preserve the language. Tribe has been in contact with Bill Anderson, Univ. of Indiana linguist regarding language materials and working with language efforts. Tribe is in the process of starting an archive but they need technical assistance with the infrastructure.
Lone Pine Reservation -- Mary Jefferson referred to the Career Development Center in Bishop; they include Lone Pine in their language classes.
Los Coyotes Reservation -- Evelyn Duro - Chair is working on getting something going with Cahuilla language but do not currently have a language program.
Lower Lake Rancheria -- No answer.
Mesa Grande Reservation -- No language efforts.
Middletown Rancheria -- Pam Reyes-Gutierrez, Tribal Council Member. No language department. Will give information to tribal council and respond.
North Fork Rancheria -- Christina McDonald, Library Liaison. No language classes at this time. There are about 15-20 fluent speakers of the Mono language from North Fork. Tribe does have an archive, and are in the process of preserving the language in the community, working on North Fork Mono archive design project which has slides, photographs, audiocassettes, cd-roms, books, ethnographic materials and newspaper clippings. Elders go to the elementary schools and their elders are developing a dictionary. Suggested contact Sierra Mono Museum, PO Box 275, North Fork, CA 93643, 559-877-2115
Paskenta Band of Nomlaki Indians -- No contact.
Picayune Rancheria -- Beverly Gram is a speaker and tribal member trying to get a language program going but doesn't work for tribe just yet. The receptionist Donna referred to Beverly.
Pinoleville Reservation -- No language or culture program.
Pit River Tribe -- Sharon Elmore, Culture Committee. No language program.
Ramona Reservation -- Anthony Largo will respond after they have reviewed project description.
Resighini Rancheria -- No language program. Was referred to the Yurok Tribe.
Rincon Reservation -- Contacted Tammy Peevler and was told that the Tribe is not involved in any language efforts or programs, or of any Luiseno speakers.
Rohnerville Rancheria -- Edwin Smith, Council Member - No fluent speakers and no current language program. No tribal archive but trying to start one. Interested in language and wants to work with Table Bluff who are also working on reviving the Mattole language.

Round Valley Reservation -- Spoke to the Education Department. No current language program but in the past years the Yuki Tribe was having classes. Will respond after she asks around the community. Round Valley has 7 different tribes.
San Manuel Reservation -- Left message with education department. No reply.
San Pasqual Reservation -- Referred to Kim Clay, resource center 760-751-7676
Santa Rosa Rancheria -- No language program.
Santa Rosa Reservation --
Scotts Valley Rancheria -- No language program. Referred to Big Valley.
Shingle Springs Rancheria -- Michelle Justice, no language program,**.**
Stewarts Point Rancheria -- No language program.
Sycuan Reservation -- No language program. Referred to Kumeyaay Community College.
Table Mountain Rancheria -- Left message.
Torres-Martinez Reservation --Education Library Center. Did have a language program but it is currently not funded.
Trinidad Rancheria -- Shirley Laos, Youth Program Coordinator. Tribe is interested in adding a language component to their youth program. Referred to Yurok Tribe Language Classes.
Tuolumne Band of Me-wuk Indians -- No language program.
Twenty-Nine Palms Reservation -- Not doing anything with language right now, "not that big", only 13 tribal members.
Upper Lake Rancheria -- Referred to Big Valley Reservation, they have a language program.

CHAPTER NOTES on "What to Preserve? A Pragmatic Approach to Preservation"

Principal contributors to this Chapter are NMAI Project Advisory Work Group Members and NMAI Project Senior Advisor on Language Models Darrell R. Kipp (Blackfeet), as well as Dr. LeAnn Hinton, Chair, Linguistics Department, University of California at Berkeley, and Inee Yang Slaughter, Executive Director, Indigenous Languages Institute.

Principal contributors to this Chapter's telephone surveys of selected Native language programs and archives are NMAI Project Research Intern Jessica Fawn White (Hoopa) and NMAI Project Intern Supervisor and AWG Member Lois J. Risling (Hoopa, Yurok & Karuk).

Principal contributors to the text review of this Chapter are NMAI Project Advisory Work Group Members Dr. Carol Cornelius (Oneida), Dr. William G. Demmert, Jr. (Tlingit & Oglala Sioux), Hon. Arden Kucate (Zuni Pueblo), Dr. Tessie Naranjo (Santa Clara Pueblo) and Marianne Smith; and NMAI Assistant Director for Public Programs Helen Maynor (Scheirbeck), Ed.D. (Lumbee), and NMAI Project Director Suzan Shown Harjo (Cheyenne & Hodulgee Muscogee).

Chapter 3: What Is a Language Repository?

LANGUAGE REPOSITORIES: OPTIONS AND CONSIDERATIONS

If a Native nation, community or organization wishes to explore options for building a language repository or becoming part of a language repository system, the first thing to know is that there are two major types of language repositories: 1) an electronic repository and 2) a physical repository. Both types of repositories are detailed in this Chapter. A glossary of terms used for each type of repository can be found in Appendix A, Glossary of Terms.

A physical repository may or may not contain electronic repository features and there is, of course, some physicality to an electronic repository. It is likely that most of the existing physical repositories and nearly all the new ones soon will house an electronic repository, will contain electronic repository features or will join an electronic repository system.

It should be noted that any exploration of a language repository begins with a discussion of what needs to be archived and what should be archived.

A coalition of tribes or language communities may wish to combine efforts and resources, in order to preserve unique, original or other materials, and consider building a physical repository. Exploration of this option would begin with the same question: what is to be archived?

The NMAI Project Team and Advisory Work Group (AWG) agree that the federal government should fund the startup and operation of Native languages repositories.

The Project Team and AWG also agree that the federal government should set up a national electronic repository and that it should contain only those materials which Native nations or coalitions of language communities permit to be included.

AWG Members reviewing this Chapter think that materials in a national electronic repository should be copied with equipment that creates both electronic and archival film copies, and that each participating tribe or community should get electronic and film copies of their materials.

Project Team Members reviewing this Chapter do not think that it is necessary for a language program to have a physical copy of every paper, book, recording, film or other item. The priority need is access to the information inside the item. If the information were digitized, it could be even more useful than the physical item.

AWG Members and Project Team Members want the reader to be aware that electronic subject indexes reflect the cultural biases of the indexers, just as subject indexes do in physical repositories, and that the way in which material is searched for and organized affects the time, cost, effectiveness and every aspect of electronic repositories.

AWG Members reviewing this Chapter favor making materials available in searchable text, or a word/phrase index, rather than a subject index. Project Team Members caution that a word/phrase index has its own limitations (it cannot search out film, for example). The reader should be aware that there is great competition at this time to develop more effective search technology. Among the most promising on the immediate horizon is for contextual searches, rather than word/phrase or subject indexes.

The Project Team and AWG are in agreement that there should be a two-part repository system, both physical and electronic, and that the federal government should assist Native nations and language communities in whatever repository option they choose.

A language repository, no matter what type, has two main goals. The first is to create a documentary record of a language as it exists at a certain period of time. The second is to provide supplementary materials for efforts to revitalize and renew endangered languages.

In pursuing these goals a repository can be created with a high degree of sophistication or can be much simpler in its design. A highly professional repository would contain the following elements:

1. Extensive, innovative language documentation that includes the creation of written and sound archives of Native American languages, thereby preserving for the future as much material as possible in a variety of formats;
2. Use of those documentary records as the basis for creating an array of teaching materials that will help preserve and revitalize these languages;
3. Use of the latest technology to create and provide access to both documentary records and teaching materials; and
4. A multidisciplinary capability for the creation of teaching materials that combine methods and insights from linguistics, anthropology, psychology, and education to produce the most effective learning tools possible.[i]

A simpler repository put together at the local level by a Language Preservation office could use any one or combination of the following materials and approaches based upon local expertise and funding:

- Audio Tapes, especially of fluent speakers relating history and philosophy, telling stories, providing cultural knowledge or teaching;
- Video, especially of fluent speakers doing any of the above and illustrating differences in the uses of language, language protocols and gestures and silences as speech;
- Written Materials, including books, articles, essays, descriptive materials and annotations;
- Linguistic Research and Notes, contemporary or historical;
- Description and Identification of significant language revitalization/preservation efforts;
- Materials that document how other peoples around the world with endangered languages have been revitalizing and preserving their languages and developing educational curricula;
- Technology Resources, including a distributed database, metadatabase and searchable sound, text, graphics and animation files, and an Asynchronous/Synchronous Learning Environment;
- Resource Lists of people, collections and materials that can provide information, expertise or knowledge about the language from a story-telling, oral presentation, linguistic, anthropological, historical, psychological or educational context;
- Descriptions of model language revitalization and education programs from around the United States and world that have had significant success;
- Materials that describe how repositories can be effectively used in language revitalization and education programs.

ELECTRONIC LANGUAGE REPOSITORIES

One tool for helping save Native American languages in the contemporary world is an electronic repository. In the days before the Internet came into being, a repository was considered a facility where items (e.g., artifacts, manuscripts, recordings, films, etc.) were deposited for storage and/or safekeeping. These items were typically carefully cataloged. Then scholars or others would fetch the object for some purpose important to preservation or their scholarship, work, or avocation.

What is an Electronic Language Repository?

Like a physical repository, an electronic repository is a storage place. What is stored electronically, usually on a computer or placed on the Internet, are documents, recordings, films, information, photographs, data, data about data and other items that can be cataloged and accessed for some purpose important to preservation, scholarship, work or avocation. Sometimes electronic repositories are also called virtual, or electronic, libraries.

An electronic language repository is designed to preserve a record of endangered languages, provide resources for language research for language scholars, or to act as a repository of information, knowledge and wisdom that can be accessed by those wanting to learn about, or learn how to speak or

read, a language. In the most sophisticated design, electronic repositories allow teachers to use repository items as an active part of their curriculum design.

Such repositories can be simply designed. They can just be links on an Internet page that lead to written documents, such as dictionaries or scholarly work by linguists or historical documents. Or they can be enormously complex, using tools like the Dublin Core, Internet-enabled databases and even meta-databases.[ii]

Lenape Language Project

A single paper cannot pretend to explore the depth of the electronic laboratory work going on around the world. At its most basic level, a single Native nation or language community will decide to develop an electronic repository to help with its efforts to save its language. An example of this basic kind of effort is the Lenape Language Project.

In this project, the Delaware Tribe has developed Compact Disc (CD) recordings designed as an introduction to Delaware. "On the CD each word is pronounced by a Native Lenape speaker and is illustrated by a photograph. There are three different modules, each with words in seven categories: Animals, Birds, Counting, Foods, Kinship Terms, Objects, and Phrases. The words are on two levels of difficulty." A guide to spelling and pronunciation is included.

The Project has three types of modules designed to help develop an understanding of the language as spoken by Native speakers:

1. A SLIDE SHOW, which presents words and images one after the other, in random sequence. This is the best place to begin to view the photos and to learn the words.
2. FIND IT, where images are presented in sets of three or four and you hear and see a single word. You must find the correct image to go with the word. If you pick the wrong image, the word will repeat later in the sequence.
3. The MATCHING GAME, which selects ten images at random and randomly scatters them on the screen. You must find both of the two matching images. When you click on the second of the matching images, both will stay on the screen. You continue until all ten images are displayed. As each image is clicked, the word is spoken and displayed.[iii]

Developed with grant funds, this basic kind of repository is designed to preserve the Delaware Language by having Native speakers develop lessons for beginning speakers. Normally, a number of aids are included in efforts of this type, such as the spelling and pronunciation guide included with the Lenape CD.

Ulukau, Language Revitalization for Hawaiians

Selection of the kind of repository built is based on the group's goals for the repository. For instance, Ulukau,[iv] one of the most important repositories concerning an Indigenous language, is designed "to provide accessibility to materials and improve educational resources and language revitalization for the Hawaiian and larger communities."[v] It is a digitization project that selects materials from the enormous Hawaiian Archives, uses scanners to digitize documents and then places those documents into an Internet site that Hawaiians interested in their language and culture can access from anywhere in the world. This is a straightforward project with a design that is easy to put into place, even though any number of complexities are related to selecting material, scanning it, photographing it or putting it into an appropriate format, and then making sure it is put onto the website so that it is readable and looks professional.

American Indian Studies Research Institute

The American Indian Studies Research Institute (AISRI) at Indiana University is "an interdisciplinary research center for projects focusing on the Native peoples of the Americas." "Current projects center

around Plains Indian languages, cultures, and history, and include software development that enhances linguistic documentation, analysis, and publication, as well as innovative instructional media for teaching Native American languages."[vi] Included in the repository online are interrelated topical areas:

- Language Documentation
- Culture History
- Music Documentation
- Material Culture

Material on each of these areas is available for five languages:

- Pawnee and Arikara, both northern Caddoan languages;
- Yanktonai and Assiniboine, both Siouan languages;
- Passamaquoddy, an Algonquian language.

Additional work is currently underway on Haida, a language isolate; Thompson, a Salishan language; and Kaska, an Athabascan language. These are Alaskan and/or Canadian Native languages.

The project's dictionary portal is designed "to support standard textual linguistic material as well as sound, data, graphic images, and video clips." A multimedia dictionary database program developed at the college, the portal has the following characteristics:

- It structures data in one-to-many relationships, in contrast to the standard flat-file format of most databases used by linguists.
- It provides sound recordings. This innovative feature allows sound recordings of Native speakers pronouncing entry forms as well as grammatical forms and examples of words in phrases and sentences. The recordings supplement the written record by providing a comprehensive oral record of the lexicon, as well.
- It allows graphical images and video clips. This feature provides for illustrations of entries that are critical for clarifying cultural objects and actions for which there are no standard English translations.
- It is designed so that the user can export the database to any one of a number of specially formatted output files, enabling the user to provide the data in HTML/world-wide-web format, WordPerfect format or standard ASCII format. Thus, the dictionary database can be readily published, both as a professionally formatted printed version and as a state-of-the-art professionally formatted electronic version.[vii]

Another tool available is an annotated text processor "designed to manage interlinear text and to support the operations of several kinds of linguistic analysis including parsing[viii] and glossing."[ix]

> Interlinear text analysis is a fundamental form of linguistic calculus in which a text is organized word by word and aligned into blocks with glosses or morphemic analyses listed across several lines….the first line contains the phonemic words, the second parses the phonemic words into sequences of morphemes, the third gives the gloss of each constituent morpheme, and the fourth line provides a literal gloss of the phoneme with which it's aligned.[x]

This only begins to describe the technical nature of the work at Indiana, but may help the reader understand how complex and sophisticated a repository can become.

The last element in the AISRI work on American Indian languages is its Center for the Documentation of Endangered Languages (CDEL) Sound lab. Using digital sound recording technology, CDEL is designed "to preserve audiovisual materials, to enhance the quality of older analog recordings, and to enrich multimedia educational resources." The laboratory's instrumentation allows the lab

- To create and store sound files as well as import them into multimedia programs;

- To establish a sound archive where recordings are stored for users in the future; and

- To use computer software programs to enhance the sound quality of older analog recordings made on wax cylinders and tapes, so that this material can be used for linguistic study and can be incorporated into dictionary databases and multimedia lessons.[xi]

National Museum of the American Indian and Queensland University's Indigenous Knowledge Management System

An even more ambitious project has been developed by Jane Sledge, in charge of Information Technology for the National Museum of the American Indian (NMAI), and Jane Hunter and graduate students, notably Bevan Koopman, at the Distributed Systems Technology Center (DSTC) affiliated with the University of Queensland in Australia. The American Indian Higher Education Consortium (AIHEC) and the World Indigenous Nations Higher Education Consortium (WINHEC) have also participated in aspects of the Indigenous Knowledge Management System (IKMS) project. This massive effort is also paired with a major metadata repository effort being undertaken in partnership with other museums by NMAI.

The IKMS project was started to allow Indigenous groups to use multimedia technologies to "record and preserve significant aspects of their cultures, including languages[xii], ceremonies, dances, songs, stories, symbols, design, artwork, tools, costumes, historical photographs, film, videos, and audio tapes." Among the project's goals is an effort to develop an electronic mechanism to enable traditional owners "to define and control the rights and access to their resources, in order to: uphold traditional laws; prevent misuse of Indigenous heritage in culturally inappropriate or insensitive ways; and receive proper compensation for their cultural and intellectual property." Developers also believe "it is essential that Indigenous communities are able to describe and contextualize their culturally and historically significant collections, in their own words and from their own perspectives."[xiii]

The software was designed for use by any community willing to work with NMAI and the DSTC to develop expertise necessary to implement the software in their community. The idea was to develop a distributed database of multimedia items that could be held by the community on their servers for the community's purposes and shared outward only when the community deemed such sharing desirable and appropriate. A distributed database "is a database in which portions of the database are stored on multiple computers within a network. Users have access to the portion of the database at their location so that they can access the data relevant to their tasks without interfering with the work of others."[xiv]

Some of the most important design characteristics built into the IKMS software follow:

- Security mechanisms - because of the sacred/secret nature of the content with which we are dealing, it is essential that the IT security mechanisms which are employed are impenetrable and reliable;
- Simple user interfaces - many of the potential users of this system will have low computer literacy, so simple. intuitive. user-friendly interfaces are essential;
- Robustness - the system must be able to stand up to the rigors of unexpected input by users with little prior computing experience;
- Low cost - in order to make the software open source and accessible to indigenous and grassroots communities, it must be built as inexpensively as possible, using tools which are ideally free;
- Interoperability - the software tools should be built on international standards - Dublin Core [11], CIDOC CRM [12], MPEG-21 [7], XrML [8]- in order to ensure maximum interoperability between disparate databases;
- Portability - it should be able to run on a range of platforms and operating systems. Java (JDBC, JSP), XML and SMIL were used as the software development environment to ensure transparent portability across platforms;
- Flexibility - The customary laws and intellectual property needs of traditional knowledge holders vary enormously among Indigenous communities throughout the world. Quite

often the views within a single clan can vary significantly, and they may also vary over time. Our system attempts to support the common notions associated with traditional laws within Indigenous communities. In addition, we provided Schema editing tools to offer maximum flexibility and to enable easy customization of the software; and.

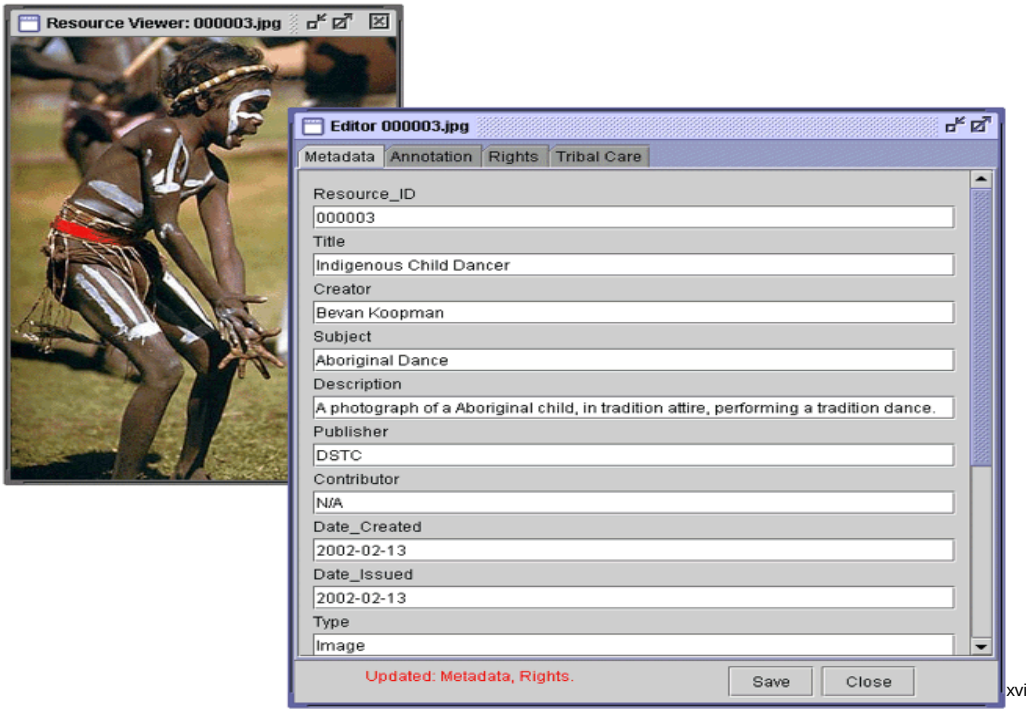
- Scalability - the size of Indigenous collections (particularly within cultural institutions) can reach hundreds of thousands of objects and historical references. The software should be capable of efficiently enabling metadata/constraints to be applied across large sets of resources, individual resources or regions/segments within resources for either individual users or user-groups.[xv]

Member colleges and universities from AIHEC and WINHEC are involved in the project as beta testing sites for the software. At Little Priest Tribal College in Nebraska, for instance, a three dimensional tour of the Ho Chunk Society Historical Museum located on the campus is being developed. Working with experts from NMAI, middle school students from the community's schools are taking photographs of the local museum's artifacts and displays. They are also meeting with elders and historical society members as part of the effort to develop annotations for each object included in their tour. Local objects will be supplemented in the virtual museum by working with NMAI in Washington, D.C., to photograph Ho Chunk cultural material stored at NMAI's Cultural Resource Center in Suitland, Maryland.

This work will eventually be put into the IKMS software on the college's web site. The plan is to have annotations in both Ho Chunk and English, along with digitization of collections of documents, oral histories and films collected by the college over the years. Language collections will be emphasized in these efforts. Those leading the Little Priest effort hope to work with linguists, as well as tribal elders, as they develop their project.

A similar effort is being undertaken at Turtle Mountain Community College in North Dakota, the *wanagna* (post-secondary tertiary institutions of higher learning) in New Zealand's Maori communities and in one Australian Aboriginal community, the Nunnacal. Each community defines a different project with different approaches and techniques.

A screen shot from the software should help explain at least part of what the software accomplishes. Please note the "annotation," "rights," and "tribal care" sub-menus, as well as the metadata information.



[xvi]

NMAI's Metadata Effort

Another project of note is the effort to create a metadata repository at NMAI designed to link databases containing American Indian, Alaskan Native, Native Hawaiian and South and Central American Native art and cultural items from around the world. This is still a forming effort, but when it is done it will allow Indigenous people to explore music or oral recordings, as an example, in the collections of museums, archives and repositories that are online around the world.

Robert Peacock, former Chairman of the Fond du Lac Band of Ojibwa Indians in Minnesota and now the President of White Earth Tribal and Community College, used to dream that he could go over to the Band's small museum and use computers to explore Anishinaabe art, cultural items and information available from Canada, Europe or wherever it might be found. This project could make that kind of power available to local Native people. Recordings of Native speakers collected at the dawn of voice recording capabilities could become easily accessible and usable for language scholars and students. Photographs, documents, information and videos could also become available. This kind of electronic repatriation is not as important as repatriation of objects and items of value to Native nations that should be in possession of them, but it could still be valuable as part of an overall electronic repository effort designed by individual Native nations or groups within them.

Education and Scholarship

Normally electronic repositories are aimed at serving the needs of those who want to learn about a particular language for either education or scholarship purposes. Often a repository is designed to meet both needs. Those who build electronic repositories can design them so that oral histories, storytelling, examples of language usage, descriptions of objects or other uses of language are stored in a way that makes them useful to either beginning or more advanced learners of Native languages. In some cases, such as the Lenape Language Project, a CD is designed to meet the needs of a specific group of learners. Examples of Native people speaking their language are designed to help learners practice and master specific language skills.

Repositories for scholars are often organized differently. Instead of presenting material in sequences designed to aid the learning process, modifications are used to present information consistent with the Dublin Core, or perhaps another schema standard. Some repositories use older library cataloging designs, such as the Library of Congress or Dewey Decimal system. Often such repositories are based upon physical repositories that have been in existence for awhile. A good example of this is the Ulukau Project in Hawaii.

A smaller number of repositories are designed with linguistic principles embedded in them. This is certainly true of the University of Indiana's American Indian Studies Research Institute's repository. The Internet, with its multimedia capabilities and flexible data entry structuring capability, is particularly suited for such designs and provides a special bonus to scholars who have a strong linguistic background. Sites like these are especially useful for languages almost guaranteed to go through a period without living speakers in the near future. Scholars can later study these languages at length and, if enough tribal people become interested, such sites can provide enough linguistic information to revive the language.

Work such as that being done by NMAI lends itself to building sophisticated community-based tools. A sophisticated asynchronous learning environment for teaching about culture and language can easily be constructed using the IKMS software as a kind of electronic information source. Cultural objects or stories or other entrees into the system can be used as learning objects with which teachers can construct sophisticated community-based lessons. The system is purposely designed to meet both educational and scholarship needs of a local, regional, national or international audience, depending on choices made by a local community.

Most of the examples given also integrate cultural preservation into their repository design. Language is the heart of a culture. Most of these efforts recognize that statement's importance.

Reasons for Creating an Electronic Language Repository

The first point to make is that an electronic language repository and related educational programs are not strong enough, by themselves, to either save or revitalize a dying language. As Joshua Fishman, the most important scholar of the emerging field of revitalizing languages put it in a paper he presented at a conference recently,

> …there are family building, there are culture building, and there are intimacy building prerequisites for language fostering, things that **you** have to do because no school is going to do them. However, the school can put that on the agenda of what has to be done. The school has intellectuals in it. The school has a building, a budget, a time, and a place. Now it has to put the life of the language, not just the literacy of the language, not just the grammar of the language, not just the lexicon of the language, but the life of the language in the home and the community on its agenda if the language is going to be passed along.[xvii]

Just collecting documents and multimedia presentations of a language is not enough. In the end, language cannot live inside a website or a classroom, but has to spread out into the community and families and be in use to be revived.

What an electronic repository can become is a touchstone for those interested in a Native language. It can provide samples of language within the context of culture. It can provide an intellectual structure for studying a language on a continuum from beginning knowledge to linguistic expertise, or provide dictionaries or other tools. It can also be a colorful, resourceful Internet or computer place that provides for language enrichment in ways limited only by the imagination.

This does not encompass the possibilities for electronic repositories, however. In an article on the successful effort to revive the Imazighen (Berber) language in Africa, the linguistic scholar Amar Almasude describes how a number of electronic technologies played a key role. As is true of most Indigenous populations around the world, the Imazighen language was repressed. In the case of Imazigen, it was repressed in favor of Arabic, the official language of Islam and the Moroccan elite. Schools have, for centuries, emphasized, "We have one religion, which is Islam, and one language which is Arabic."[xviii] This has been emphasized to the detriment to the Amazigha people.

For a number of different reasons, including interest by tourists in the language, the making of a movie in Imazighan, the playing of traditional music and the publication of a book, the Amazigha people became increasingly interested in their language in the 1980s. This led to the use of VCRs, email and other technologies, in an effort to bolster language use during the 1990s.

> With the availability of computer communication technology in the 1990s and the growth of an important Amazigh student body in the Western hemisphere, the Imazighen seized the opportunity to build worldwide forums. Through Amazigh-net, for instance, an electronic mailing list established in July 1992, the Amazigh cause took an international dimension (Bouzida, 1994). Currently there are also several dozen web sites that are concerned with the question of Amazigh identity and strategies to implement the Thmazight language into the curriculum and mass media.[xix]

This use of technology around the Imazighen language in turn helped build an Amazigh identity and led to increasing use of the language throughout Morocco. It also gave the language a greater degree of “respectability” among the Amazigh people.

The point this story makes is that the Internet is malleable, as much a communication as a storage and retrieval medium. If an electronic repository is linked to other tools, for either education or communication

purposes, it can play an important role in language revitalization efforts. This is true even if it is also true that an electronic repository on its own cannot save a language. It is one tool, not an answer.

Building an Electronic Language Repository

Before a Native nation or language group can create a project to build an electronic language repository, the group first needs to decide what it is trying to achieve. Are the people in the group interested primarily in preservation of Native speakers' voices? Are they interested in saving the language for future generations? Are they trying to recover a dying language? Are they going to use the repository as a resource for education? Will this education be aimed at beginning speakers or more advanced speakers, or both? Is the repository going to represent a major effort to store cultural artifacts, stories and voices, along with language materials? Each one of these questions has implications for the process of going about the effort to build a successful repository.

Having said this, however, it is also important to point out that such questions can be taken too far. As Fishman put it, the key to resuscitating a language is to start in the simplest way possible and then to build from there. He noted that too many times the enormity of the task, and the almost universal failure rate, discourages people too much from what is one of the most important efforts they can undertake. He urged those interested in saving languages to start somewhere, anywhere. Just start.

Implications derived from the above questions help define how to move forward. For example, if you are trying to build an historical record of the language so that you can at least preserve the possibility that future generations can revive it, the art and science of linguistics is highly important. It pays to engage professional linguists who can create a way to communicate pronunciations, context, speech rhythms, meanings, syntax and a host of other concerns to those who, in the future, will undertake the task of understanding and reviving the language.

If, however, you are primarily interested in recording Native speakers for the historical record, saving their inflections, accents and patterns of speech, or keeping for the future stories or ceremonies true to what they are meant to be, the task is much simpler. You need to record the speakers' voices selected for preservation using professional equipment, preferably recording them electronically rather than with a tape recorder. Or, if they prefer to be recorded using a tape recorder, methods for transferring tapes to electronic media are really advanced. You will need to catalog the work done so that it can be found by using annotations, keeping careful records of each session and creating menus. But, in the end, the recordings can be stored on a CD, in a hard drive or on the Internet. It is not necessary to spend huge sums of money for linguists and software designed to help make syntax and other speech and context considerations clear.

No matter what the purpose for your electronic language repository is going to be, however, there are some paths that should be explored. Does your nation, tribe or language consortium have, in-house, the expertise to do the writing, recording, storing or technology work required? Part of the requirements are related to computers, storage, networking capacity and technical support capability overall. Other requirements are related to software, security, and web design or programming skills.

Variations in all these areas are linked to the project the group attempts to implement. In a project like the Lenape project, requirements can be modest. Most computers have the ability to create CD-ROM files these days. Digital recording equipment will be needed, along with the software to transfer digital recording from the recording unit to the computer. Also important is the ability to edit sound quality in cases where problems exist. Web design skills would be useful, although the skill level probably would not have to include more advanced abilities, such as mastery of Common Style Sheets (CSS) or java. Using one of the software packages designed to help develop websites, such as Microsoft's Front Page or Mozilla's Composer, could take care of the required tasks.

A project like this can create more demands, again based on the sophistication and complexity of what is attempted. If the project developers create so many recordings and translations that a database is

needed to help keep track of them all and provide a successful user interface, then database skills will be needed. If there is a desire to put the project on the Internet, then security and web page design become increasingly important and demand higher skill levels. Such decisions can also increase the amount and power of the computer hardware needed.

Hardware and skills demands of a project like the Ulukau project are much more sophisticated. Not only are high quality scanners needed, but cameras, pdf software, editing software and skill in using programs like Adobe's Photoshop or Illustrator are needed. Web design skills become more important also. CSS skills would be recommended along with an understanding of handicapped accessibility since users from all over the world are expected. Files need to be placed within a database format workable on the web. Security, networking and broken link skills also become important. Documents will inevitably be in different states of readability, sound recordings will be in various states of usability and fragile materials will need to be handled with care. Skill levels of those working on the Ulukau project are inevitably high and can be expensive. Hardware and software costs also can be high.

A simpler project with some of the Ulukau attributes is possible, of course. A good example is the Internet site, "Tohono O'odham (Papago) Literature."[xx] Containing poems, stories and even lessons on the O'odham Language, this web page was developed by a partnership between Ophelia Zepeda of the University of Arizona and a skilled web developer, Glenn Welker. Language lessons were created on a computer, reducing the expensive cost of scanning and editing. Computer demands, since this is a much smaller project, were minimal compared with those for the massive Ulukau effort. Dr. Zepeda, a member of the Tohono O'odham Nation, is a top linguist, who won the MacArthur Foundation Award, often referred to as the "genius award."

Only an exceptionally well-endowed project could possibly attempt to match the standards of projects like the one at the University of Indiana's American Indian Studies Institute. If the choice is to become extremely serious about documenting a language and saving as much of a traditional culture as possible, the best option is for the Native nation or other group to find a major university with scholars and technicians interested in their nation with which to work. A team can be assembled within a tribal or language group setting to accomplish this, especially at one of the tribal colleges or universities that has a great deal of technology and/or linguistic/cultural expertise. But, expertise levels in technology, linguistics, culture and web design are going to have to be exceptionally high.

One of the more interesting options for Native nations, tribal colleges and universities and Native organizations is the Indigenous Knowledge Management System and metadata repository project at the National Museum of the American Indian (see description of this project earlier in this Chapter). NMAI and the DSTC are willing to allow use of the software for free, or with a small licensing cost in the case of the metadata repository project still under development, to eligible institutions. Participating institutions will have to pay for training and the work needed to put documents into the database. They also have to cover hardware costs, which can be substantial. In many ways, this is an option that can benefit language and cultural repository projects, and even efforts at using repositories as part of an asynchronous learning strategy, at relatively modest costs compared to the sophistication available.

The Trail to Building a Virtual Language Repository

Action	Considerations
Step 1: Ask the question: Why do we want to build a virtual language repository? • To provide a record of the language that can be used by future generations to study and/or resuscitate the language? • To provide a source of knowledge about the language to tribal members who have moved to cities or other countries? • To act as a tool in helping to save the language? • To provide one element of an electronic strategy that utilizes additional tools such as bulletin boards, email, music recordings on the Internet, oral discussion forums over the Internet, etc. to increase language usage? • To increase active participation in language usage? • To provide an oral history of cultural knowledge such as stories or teachings? • To preserve the voices of current speakers of the language? • To act as part of an education strategy in the teaching of language and/or culture?	Write down the answers to each of these questions, then decide on a strategy to accomplish the goals based upon your answers. • If your goal is to provide a record of the language that can be used by future generations to study and/or resuscitate the language, then your strategy will require expertise in linguistics as well as technology. Linguists provide the tools to communicate language structures and meaning across time. The technology required for such a project will also be highly sophisticated. • If you simply want to provide a source of knowledge about the language to tribal members who have moved from the reservation or community, you can decide to use CD ROMs, the Internet, or even tape recordings to capture samples of language usage. Then you can translate the samples using simple written materials. Illustrations and art work can be used on the Internet to increase your presentation's effectiveness. • If you want to provide one element of an electronic strategy that utilizes additional electronic tools to increase language activities, you need to identify which tools you want to use and work to build electronic communities that will use these tools in a conscious strategy to save the language by increasing usage. • If you want your electronic language repository to be useful as part of an educational strategy to teach the language to new generations of speakers, you will need to build e-learning tools into the repository and work with educators to structure lessons, classes, and even degree programs. • Any one repository project may have multiple goals and pursue multiple strategies to achieving those goals.Avoid widows and orphans
Step 2: Identify what technologies are going to be necessary to achieve your goals.	A wide range of technologies is of possible use to an electronic language repository. Some of these technologies are hardware related. A large repository, especially one that uses photographs, audio, and/or motion, will require sophisticated server technologies with lots of memory and hard disk storage. The issue of security is extremely important. Who should be allowed to access what materials? This question can demand both hardware and software solutions. A sound lab can be as simple as an electronic or standard tape recorder. Or it can be so complex that it demands equipment that will require skilled technicians to save and enhance

	recordings that are old, have been stored on obsolete technology, or were poorly done. If you choose to simply store oral history or stories on CD, all you may need is a computer with a CD-ROM burner and the appropriate software. Developing a web site for an electronic language repository can be equally simple or complex. You probably should seriously consider using Common Style Sheet (CSS) and handicapped accessibility standards, although you can choose to use much less sophisticated tools like Microsoft's Front Page software or Mozilla's Composer software. CSS can help users with a variety of search engines to view the repository site. Other tools can range from Macromedia's Flash software to Adobe's Photoshop. Interoperability and scalability of the site are also important attributes that need to be taken into consideration. Then you need to decide how people can find what is included in the repository. Will a simple menu work? Or do you need a web-based database? Related to finding what is on the site are tools that can be built into the site. Bulletin boards, instant messaging, telephony, white boards, java chats, editing software for both sound and text, PowerPoint presentations, and annotation tools for site users only start to describe the options available. Even maintaining the site can be complex. Do you need a document management system? Is linkbot software going to be enough if you include links to other sites? Or do you need a more sophisticated broken link finding and repair capability? Expert help to answer these questions is important.
Step 3: Identify the partnerships, expertise, and resources needed to implement research, technology, and linguistic strategies important to achieving project goals.	Few organizations or Reservations are going to have the expertise in-house to accomplish a highly sophisticated electronic language repository. Those deciding to build a repository are going to have to build one that matches skill levels of those charged with the construction process. Or they are going to have to hire expertise, find qualified consultants, or build partnerships to accomplish the desired work. One note of warning is that many consultants with a certain level of computer and software skills may not realize they do not have the skill to accomplish a more sophisticated project. For instance, are they experts in CSS? Do they know how to record high levels of sound quality electronically? Do they know enough about linguistics to match the requirements of the site to the standards of linguistic presentation? Can they rescue either sound or video-taped presentations from outmoded technology and then transfer it to an Internet site? In most cases partnerships will be necessary to successfully build more sophisticated repositories. Some of the tribal colleges and universities have significant technology, linguistic, and/or educational

	resources available. The National Museum of the American Indian and the University of Queensland partnership has much to offer. A number of universities, ranging from the University of Indiana to certain community colleges to international organizations such as the World Indigenous Nations Higher Education Consortium to the Massachusetts Institute of Technology to the University of Arizona can provide funding possibilities as well as linguistic and technology expertise.
Step 4: Identify what materials, resources, people are available in the community to provide substance for the repository.	Technology decisions are important, but even more important are the material, people, artifacts, and other resources available in the community for the repository. What formally trained expertise in the language exists locally? How many speakers are willing to work with the repository project to provide oral history or cultural materials? How much library material on the language or culture exists that can be used? Has the tribe or local schools or Head Start programs undertaken oral history projects? Do regional libraries contain recordings, videos, or microfilm of materials that can be used? Can materials, photographs, recordings, or videos be secured from the tribal museum or other local museums? What about letters that individuals have in their possession? Does the tribe or a local county or historical society have an archive that will be useful? What financial resources are available? Local content can also be secured from national institutions like the National Museum of the American Indian, the Library of Congress, the National Archives, and possibly even from a private institution like the Heard Museum in Phoenix, Arizona. This means that research is an important component of finding resources related to the community. Keep with above
Step 5: Develop a budget tied to a timeline and the project's goals.	Remember that an electronic language repository is a long-term effort. It must be maintained over years rather than months. Construction costs are vital, including the people and technology needed to make the repository happen, but technologies need to be maintained, new materials added, and users supported. Costs can be modest at the low level of technology, e.g., developing an effective CD to teach young children about the language, or developing and maintaining a menu-based web site that contains a limited number of written materials and illustrations. But the more sophisticated the repository, the more funding will be needed to both develop and maintain it.
Step 6: Work at raising funds for the project.	Raising money for any cultural or language project in this country is difficult. However, some possible resources are: • The Administration for Native Americans. • The Native American Languages Act. • Certain Department of Education programs such as Bilingual Education (primarily available to K-12) schools and school districts, or Title III of the

	Higher Education Act for tribal colleges and universities. • Head Start and other early childhood programs. • Foundations like the Grotto Foundation and the Endangered Languages Fund. • Certain National Science Foundation programs, especially as those relate to researching how to develop electronic language repositories, primarily available to colleges and universities, including tribal colleges and universities. The Tribally Controlled Universities Program managed by NSF can also be used using a successful project design. • Tribal governments. • Tribal casinos. In most cases projects will have to be put together from multiple sources of funding.
Step 7: Implement the project.	

Conclusion

Those who wish to create an electronic repository have a lot of options. They can go it alone and create either a simple or complex program based upon existing materials, such as videos or sound recordings. They can pursue partnerships with tribal colleges and universities or other educational institutions in their region to accomplish more complex tasks. Decisions about which path to pursue should be based upon the purposes of the effort to create an electronic repository.

By themselves electronic repositories are not an answer to language preservation. However, they can be useful as part of an overall education program, and they can preserve vast amounts of material and information for future generations.

One note that should be taken into consideration for those interested in electronic repositories is that computer and Internet technologies are best at encouraging collaboration and making materials available over distance. Native people distant from their nation or community in cities or other lands can access electronic representations of their culture and language wherever they live. Linguists and other experts, if they are not located in the community, can be easily accessed through partnerships and collaboration projects. By joining efforts such as those developed by tribal colleges and universities, the University of Indiana, the University of Arizona or NMAI, Native nations and language communities can engage enormous regional, national and international resources for their locally controlled and developed efforts.

Saving languages is important work. Educating about languages is equally important work. Language is the heart of a people. Inside a language is the expression of that people's heritage and culture in its purest form. An electronic repository can play multiple roles in the great effort to bring Native languages alive in the contemporary world.

PHYSICAL REPOSITORIES

Building a Physical Repository

The location of the repository will determine the characteristics of the building materials. The location and orientation on a particular property will determine the type of heating, ventilating and air conditioning system to be utilized.

Within each geographical region, there is a wide variety of microclimates. It is important to look at the

microclimates, because each one will have certain characteristics and will involve its own considerations. For example, are termites prevalent? On what type of land will the repository be built (i.e., granite, solid rock, sandy or clay soil, etc.)? The specific conditions will determine the type of foundation and type of materials to be used for walls, roof and floors.

It is important to talk with local architects to find out what materials are used locally and how they stand up over time, given the particular factors in that microclimate.

After determining the microclimate and having chosen the types of materials, the Native nation or language community can then look at the local people and all others who will use the facility. In the case of an archive, the group must determine the types and quantity of materials to be stored in the facility. The size of the facility, as well as specific designations for areas within the facility, will be determined by the specific types of collections and requirements of the materials to be stored there.

Once the group knows exactly what will be stored in the facility -- and projects beyond quantities at the current time to future quantities over a period of time – the group can then size the different rooms within the building. The main factors which will determine arrangement of interior space are the size of building; the types of population (public, staff); and the type of relationship the group wants its elders, researchers and staff to have with the public (intermingling, partial or total separation).

The group needs to determine if it will build an environmentally friendly repository. One may or may not be cost effective, and probably would be somewhat costlier. Certain costs can be controlled, but this is sometimes done at the expense of the longevity of the building. Most builders do not currently utilize materials and methodologies for environmentally friendly buildings, and those who do bid higher because they are bidding their learning curve, as well. This affects the total cost of the building.

The kind of building that is best for an archive or archival repository is one that does not immediately respond to its environment. That is, when it becomes hot or cold outside, the building does not immediately become hot or cold inside and there is a lag time before temperature rises or drops.

You are looking for a building that is massive enough in structure to maintain a constant, controlled environment. This is needed to maintain good preservation; for example, to keep the records free from mold, mildew and pests.

Various forms of concrete are the best materials to use in any building situation. Concrete has a very long thermal lag: when the temperature drops quickly outside the building does not change that quickly inside. It is cheaper and easier to heat or cool, and also to maintain the heat or cold. Concrete can also be sealed to the point that it is actually impermeable to bacterial forms, pests, etc. On the east coast there is a plant that manufactures **Hebel Block** (see Glossary).

For the interior, **Radiant heating and cooling systems** are best (see Glossary).

Stucco and **slump block** (see Glossary) are very common and relate to the indigenous architecture–adobe blocks. Adobe is high maintenance but slump block does not require high maintenance. It is termite proof, fire proof, and costs very little to heat and maintain.

The ideal situation is to have no windows and no doors; then you have total control. Introduce windows and you are introducing a change in the climate control system that is rapid and requires much more immediate response.

You can put in a lobby or public area that is well lighted but is still well insulated from the rest of building with thermally insulating walls so you don't have to worry about the archive stack area where the collections are housed being affected.

The actual interior spaces will be determined by the particular facility itself. The research room would be separate from the stacks. It would be best to have a transition space between the stacks and the research room to allow for better climate control in the former.

Another building form developed in recent years but not used much until the last four or five years is the **Insulated Concrete Form (ICF)** (see Glossary),

Another type of extremely useful architectural material is **Therma-Steel** (see Glossary) panels for the roof:

ICF, ThermaSteel, and **Insul-Deck** (see Glossary) are good forms for longer spans, depending on the shape of the building. Applied styrene material with T-bar concrete is a thermally isolating material for spaces - a great insulation to keep hot, cold or cool. This material also minimizes any type of rodent or other insect infestation because it's not a material that is consumed by pests.

ICF and ThermaSteel are fairly cost effective and can be constructed by a decent carpenter with a little construction experience using lay people. They can build the ICF forms, mix and pour the concrete, put rebar in, and build the building themselves. It's done quite often. Habitat for Humanity has done quite a few buildings that have utilized these materials.

Other materials available: **shockcrete** (see Glossary) forms that go on in-steel panels, plaster on either side of the in-steel panel. One problem is sound: you get a hollow sound on the inside.

Two types of roofing are pre-manufactured ThermaSteel and Insul-Deck. Insul-Deck can be used as a roofing or flooring system. If the floor must be put 6, 8, or 10 feet above ground because of flooding or other reasons, Insul-Deck can be used and is so strong a small pickup can be driven over it.

Accessibility is extremely important as codes, such as the Uniform Building Code, change. The requirement is to allow everyone to access spaces as equally as able-bodied people. People in wheelchairs or on crutches, the visually impaired, those with other impairments are now protected by the Americans with Disabilities Act (ADA).[xxi] The width of aisles and doors, the clearing around doors so one can bring a wheelchair up to the door and have access to the door handle without impairment, toilet facilities, kitchens, the height of counters and cabinets, all have to be designed for that type of accessibility.

If you are a federally funded project, ADA requires that your employees also be capable of utilizing the facility. For example, the archives may employ a person in a wheelchair who must have access to all areas of the archives. You must look at local codes to see if you are obligated to meet accessibility requirements for employees as well as the general public. Around the outside of the building itself, there must be safe accessibility, which means that for van access, for example, the building must be built in such a way that someone in a wheelchair doesn't go rolling down a hill when they get out.

You must look at federal, state, and local (e.g., county) laws; for example, California is in conflict with the federal government about which guidelines govern in certain situations. That must be resolved before making final design decisions.

If the building has more than one floor you have the same regulations: If staffed with someone in a wheelchair you will need to consider putting in elevators. Mechanical systems, such as elevators, bring the cost up tremendously. You have to ask yourself if it makes sense to build two stories. Everything in the building must be accessible: kitchens, bathrooms, toilets. It is best to have a unisex bathroom because of the difference in utilization of toilets by males and females: males usually spend less time, and females would then have access to all the toilets when not being used.

How do buildings differ and how do you get them to be more than just concrete blocks? Whether block or plain concrete, you can use the outside as a place for a mural or castings of specific tribal symbols which can be done locally to distinguish the building and give it some specific relationship to the area or tribes

who are using archives. This should be done by the local architect in conjunction with whoever is utilizing the building. Tribes can give information and the architect can take the symbols and translate into easily duplicated concrete stucco or imprinted forms that can form the actual architectural detailing on the building itself. You can also have colored panels. The architect can sit down at the computer, clients can give information and the architect can show what it will look like and get comments at that time. You have a direct client relationship, and it is extremely productive to get feedback right away. You must first determine what the medium is going to be: what concrete form and what method of production is available. The fact cannot be overemphasized that you can plaster stucco onto any form of concrete; stucco can be carved, shaped, colored, and tiled. Mosaics done with broken tiles made into patterns of symbolic designs can be extremely beautiful. You can get the broken tiles from the quarry, tile shop and similar places that sometimes give them away because they are broken materials.

Concretes have changed quite a bit over the past 20 years. The Center for Advanced Cementitious Materials (ACM) located in Champaign/Urbana is an organization funded by the concrete manufacturers and the American Concrete Institute. It is funded for the purpose of experimenting and creating new forms of cement-based concretes.

Originally, concrete was only made of cement, lime and sand, with the addition of rock. That was the way the Romans did it and the way we did it up to a number of years ago. But they looked at ways to make it less brittle. That's when they started adding additives, such as materials which made the concrete set slower, plasticizers which kept it more flexible, retardants which kept it from drying quickly, and the addition of materials which could inhibit the microcracking that occurred. Initially they added very thin pieces of steel fragments which gave it strength and prevented it from cracking. Concrete is good in compression and lousy in tension. Steel rebars make it take a certain amount of tension and give it more flexibility. They went from steel particles which rust to polypropylene fibers, commonly known as fibermesh, which gives concrete the ability to withstand microcracking over a period of time. They also have additives to do a lot of different things for concrete; for example, concretes which can set up under water and concretes with all different types of strengths and consistencies. You can basically get concretes custom tailored for what you need.

Concretes have the ability to provide the characteristics where you want things to remain constant. Any kind of organic material is subject to the microclimate in which it is located. Even concrete is subject to the microclimate and must be mixed for that particular climate or soil, such as very alkaline soil. You must analyze the soil and given the specific chemical characteristics of that soil, you need to find out what is best to maintain the concrete's integrity over time.

Concrete can be used in any area; there are manufacturing plants in all areas. Block manufacturers can stamp out different forms. Concrete blocks provide the same type of insulating characteristics as concrete. They come in 10- to 12-inch widths. Hebel block can be assembled by unskilled labor under the direction of a carpenter; ThermaSteel panels can be laid out by two people very quickly. Labor, which is at least half the cost in a construction project, can be cut down considerably by using products which can be manufactured in the factory and assembled on site. Hebel block, Insul-Deck, ThermaSteel, and ICF are probably the easiest to do.

The cost of concrete is more than comparable to any kind of frame construction. Cost depends on how you lay out your building, and having someone knowledgeable put together something that is not complicated to form up. If you have to use a lot of plywood in extremely complex forms in which to pour the concrete, then the costs go up. If you've designed something where you have ICF concrete forms– they are the forms, they go up, they stay in place; you pour the concrete, enclose the outside and that's it. No plywood to take off, no wood to buy.

With respect to concrete as a building material, the shape of the structure is important to consider. A curved structure requires a lot more formwork if it is a poured concrete structure. You must have plywood, formwork, support systems, etc. The cost of labor to erect the forms, pour the concrete in them, and take off the forms is not minimal. You are left with a wonderful concrete structure, but have paid a lot of money

to build the forms out of plywood and then to strip them down, and you have also thrown away a lot of good wood.

ICF forms stay in place. Poured concrete can make interesting shapes but you pay for that because you pay for carpenters to create very unique shapes out of wood and then pour concrete around them which is pretty expensive. With ICF blocks you can make angles or you can make curves to a certain degree. Depending on the area of the country you are in, the Hebel block would be better because you can sculpt whatever you want out of it. It is probably much cheaper because given the opportunity to sculpt a building, you would probably have a lot of volunteers.

ICF, Hebel block, or solid concrete block, including slump block, are extremely quick to do as well, and good concrete masons can put up walls very quickly with them. However, they do not have the same characteristics. ICF already has insulation. Hebel block's air pockets already have insulation in them. Concrete block is quick and fast, and slump block looks just like adobe block on the inside and on the outside you can plaster over it or leave it exposed. Slump block is not a concrete block that you put rebar into or pour concrete into, so you must be careful how slump block works in seismic areas because of rattling.

The type of building is governed by building codes that govern that specific area of the country. For example, there are four basic levels of seismic zone in the country. California is zoned 4, the highest level. Thus in California you must build to a different standard of safety, a different structural stand. In Florida there is a hurricane code based upon hurricanes so you must design based on wind factors. In Louisiana, because of the tropical climate, you have a whole different set of materials you must deal with. Microclimate is very important and local building codes are very important: they will tell you at what level of structural integrity you are required to build. In every area concrete will apply, but the way in which it is reinforced and assembled will differ depending upon the particular zone you are in and the building code that applies in that zone.

Freeze/thaw areas are important because you have a condition in which the foundation is being pushed at by different forces. You must approach the design of the foundation differently. Most of the time, you must go below the frost line. The person in charge of the design must consider such factors. The best way is to work with someone local who lives in the area and has been using building codes for a long time and has 15-20 year's experience designing for that particular area, and is comfortable with the local building officials.

Building officials are the final word and it is extremely important that you take your preliminary designs to the local building department and begin the process with them so they can be brought on board early, and you have no surprises once you finish your design. They have the right by law to veto or to change almost anything you do in a building; but they also have the right by law to make exception to the code. You cannot fight them or argue with them. They will tell you a lot about what you can expect in an area and they have a tremendous amount of knowledge about local building techniques and technologies.

Even if you are not required by law to get approval by the county or city, it does not hurt to have your plans reviewed by a local official, because there are contractors out there who for one reason or another may or may not do a safe job. Everything building code officials do is meant to promote the public safety; but a private contractor, if not reviewed, may do something that may not be as safe as it should be for that particular area. So it would be good to have a local official look at it, even if the official doesn't have to approve it, just to make sure that the contractor meets local safety requirements as well as accessibility requirements, and that the building will stand up in the worst environmental situation. Building codes are the minimum required for safety; when you build to them you are doing the minimum so you want to at least have that.

Remodeling an Existing Structure

Almost every city and county in the country has an environmental health department; you will have to check to see if the city or county in which you will be building or renovating your facility has one. If it does

there will be rules, regulations, and requirements for the remodeling of any building. These rules relate specifically to health and safety. For example, they will tell you what type of surface materials you have to use in a bathroom. If it is an older building, you will have to resurface all the walls and floors. They will require floor drains and specific types of laboratories. If there is a kitchen used by a staff, they will be very specific about the types of sinks, types of floor sinks (which are used under the sinks), types of wall materials, types of floor materials, and types of drains that have to go into the building.

In some cases, it can depend on the percentage of the building you are remodeling. For example, in Oakland, California, if you remodel more than 50 percent of the building you are required to bring the entire building up to code. That is an enormous expense. So it is something you should check out before remodeling. Depending on the type of building, the environmental health department also has requirements in terms of the type of support rooms you must have. Determine the codes that will impact your remodeling and will affect the other portions of the building you are not intending to remodel or have no funding to remodel. It is best to check with a local architect who knows the codes and can advise you; even if you don't get the architect to do the design, talk with him and discuss the codes and how those codes will impact you.

Besides specific materials and equipment required for bathrooms and kitchens, there are also requirements with respect to disposal. For example, if you have a kitchen there will be requirements for the type of dumpster outside, location of the dumpster, the space around it and access to it. This is not a trivial question, whether it's new construction or remodeling.

What makes it difficult in remodeling is that you already have a predefined structure and you have to now make it accommodate the new codes, regulations, and requirements. It is important to get the specific codes from the environmental health department for the specific geographic area that the building is in, and utilize those in your design. Immediately after you have completed your design, even in the preliminary stages, you can submit your plans to the local environmental health department and request a preliminary review, and in that review they will let you know what you are lacking, and give you specific information as to what needs to be added. That will ensure that you meet the local codes for environmental health.

There are two approaches to remodeling: a single use building, in which the entire building is used for an archives, and a multi-use building, where only a portion of the building will be remodeled for archives. Take, for example, remodeling of a community center. As a single use building, occupancy classification is quite simple and has no complexities; but as a multiple use building, different uses are considered separate and distinct occupancy classifications. Both national and local building codes have very specific requirements as to how you must keep occupancies separated. For example, some require 4-hour firewall separation. This means that when remodeling the building you must build walls between the separate occupancies that will withstand a fire for four hours before collapsing. These firewalls have to go from the very foundation all the way up through the ceiling to the roof, so that the fire cannot penetrate any openings. Openings between firewalls have very specific architectural requirements for protection so that the fire cannot spread through ducts, shafts, electrical outlet openings, switch openings, etc.

You must examine your local and state codes to find out specifically what occupancy classifications govern specific uses that already exist in your building, and what the occupancy classification is for the new use you are planning; then, you have to research what is required when you have these occupancies sharing common walls. Also, relating to exits: you have very unique situations depending on the configuration of the archives, corridors to it, very specific requirements for fire exits, path of travel from farthest point to nearest exit door, requirements in terms of distance you can go, required signage, alarms, as well as the ADA (Americans for Disabilities Act) requirements for the hearing impaired, such as flashing strobe lights, etc. You must also comply with federal, state, and local ADA requirements. Requirements dictate how you lay out your rooms, such as meeting needs with respect to access and egress to the building. Remodeling when you have a multiple use building is a little more difficult than when you have a single use building.

In addition to the above fire safety and health requirements, you have a question of remodeling as it relates to the actual space itself. The first consideration is structural: The existing building is designed for very specific loadings, given in pounds per square foot for live load and pounds per square foot for dead load, which reflect the intended use of the building. Using the community center as an example, offices would have a very specific classification with respect to how much load per square foot would be on those floors. With archives, you are talking about placing on floors that were designed for one purpose loads that would easily exceed the structural design limits. At all times you are required to obtain a structural engineer who will give you an analysis of the existing building and determine whether or not the existing structural requirements meet the new loading characteristics. The engineer will tell you if the structure of the building has to be upgraded to meet the new loading requirements. Often the cost can be quite prohibitive since the structure of any building is not easily accessible, and depending on the type of structure may or may not lend itself to being modified for archival use. It is very important that in the very beginning of the process you obtain a structural engineer to determine if a specific building will even work as an archives, given the loading situation that you will require with cabinets, papers, books, shelving, etc., which can be very heavy. Have the loading requirement looked at the very first thing before you get too far into codes and other design aspects because if the building cannot be modified you are just wasting money and time doing other studies, analyses, and design work.

Once the structure of the existing building has been looked at and found suitable or easily modifiable within budget to accommodate archival use, the next step is to take a look at the ability of the building to meet specific mechanical requirements with respect to heating and cooling, so you can maintain the climate control required for an archive. There will be different requirements in Louisiana than in Montana, California, the Midwest, or the Northeast. Most buildings will already have heating, ventilating, and air conditioning systems, which may or may not be modifiable and useable for remodeling. These systems are usually less expensive items to adapt once it is determined whether they are useable or not. You can hire a mechanical engineer to determine if you have the means to modify the existing system or to add on to it a separate system for the purpose of maintaining the type of climate an archive demands.

In terms of utilities, you will have to take look at the electrical system. Most buildings have wiring and a panel which accommodate a certain electrical load. Very often in a building's life many gadgets are added and electrical equipment is upgraded. It is almost a truism that whenever you upgrade a mechanical or electrical item the requirements go up, never down. If an older building with a 400 amp circuit panel and 120 volts coming in has no excess electrical capacity, then the building will have to be rewired to meet the needs of the new electrical and mechanical equipment. This is not an insignificant cost factor. You must have an electrical engineer evaluate the existing panel. You should know by now what your equipment will be and what you will be adding to the existing load, and the electrical engineer will be able to tell you whether the existing panel can accommodate it, and, if not, what must be done to upgrade. Upgrading can sometimes be a simple thing and sometimes as complex as having the local utility add a new transformer to the local telephone pole, because there is not enough power to accommodate your new electrical needs. This is something which has to be developed by an electrical engineer.

Sewer systems should be adequate because sewer systems are normally sized for a generality which can accommodate an increase in loads. However, depending on your facility, it wouldn't hurt to have the mechanical engineer take a look and determine that you have adequate facilities for adding on to the sewer system and for your water supply, if you're bringing in new bathrooms or a kitchen.

The building itself is also a concern. This is a very building-dependent question. Some are brick, some wood, some stucco inside, some sheetrock, some paneled, with different types of interior designs. When it comes to remodeling you must look at the flow pattern. In a single use building it is fairly easy to get in and change walls, corridors, doors, rooms, etc. Some walls are load-bearing walls and cannot be removed. A structural engineer will tell you which walls can and cannot be removed. To make it work for new occupancy, you must make sure that wall, floor, and ceiling configurations correspond to fire and structural requirements for new occupancy. These are specifically laid out in the Uniform Building Code or the National Building Code, whichever applies to your area. In the case of a multi-use building, the most difficult design problem is to plan a circulation pattern that accommodates both existing uses and the new archive use. It would be very wise to seek out the services of an architect who is skilled in interior design

work and commercial work that's related to the existing functions as well as some experience in working with archives. TThe architect can provide two or three alternatives for a circulation pattern that will meet the existing needs of the facility's occupancy as well as your needs, and still be within in the parameters of fire code regulations, access and egress requirements, and the like.

In the process of planning a layout for a single or multi-use building, it is important that you obtain alternative preliminary, almost schematic designs, so that before you are committed to a final design development, or production drawings., you have a chance to evaluate several alternative designs to be sure that they are really accommodating your specific needs with respect to circulation, privacy, and sound control, and other factors. And also in a multi-use building you must make certain that your design does not interfere with the access, egress, and service requirements of the already existing occupancies.

If the building is structurally sound, there are a numerous number of materials that can be utilized on walls to make them impervious to moisture, bacteria, and fungi. Some are materials that are actually used in bathrooms and kitchens. Durock is one cement board that is waterproof and is used as a backboard behind your finished materials. Greenrock maintains excellent stability and can withstand any kind of vapor penetration. In ceilings, materials can be used as vapor barriers and can stop any vapor from entering the room. But this will require stripping rooms of their existing coverings and redoing rooms in materials that will provide vapor proof barriers. The doors will have to be replaced with doors that are soundproof, leakproof, and airproof to prevent any modification of the climate that you want. Assuming that has all requirements have been met; that there are no major structural problemsand structurally you can rehabilitate the building; that electrically and mechanically you can provide sufficient power as well as a sufficient HVAC system; that you have looked at the circulation flow to accommodate the new use and the existing use, and worked out a reasonable circulation pattern, you basically have the definition and division of spaces and actual materials to use to make the building or room function for archival purposes.

It is not possible to give an estimate of renovation costs because all structural situations (contractor fees, materials, plans, designs, HVAC, mechanical and electrical systems, and so on) will be different according to the location. You can check some of the costs from a book entitled *RS Means Building Construction Cost Data 2005* which contains unit costs for more than 23,500 building components. These costs are prepared from the experience of thousands of contractors and suppliers in the twelve months just before the book is published. There is also *Means Square Foot Costs 2005* which is useful to anyone who needs rapid budget cost estimates. This book gives you clear descriptions and illustrations of hundreds of residential, commercial, industrial, and institutional buildings.

Hazardous Materials and Contaminated Objects in Archives, Repositories and Museum Collections

Language materials which have been or are being stored with a museum collection or in older buildings could pose a danger to people handling them and to materials that come into contact with them. Practically all museum collections contain objects that present a risk to other objects in the collection, to museum workers and to visitors. Paper collections, audio recordings, video tapes, film, photographs and other historic language materials may have been or may be stored with contaminated museum objects. As a result, these materials may have been or may be cross-contaminated. The extent of this risk is difficult to predict or assess at this time and there are very few published scientific studies that quantify or draw conclusions about the risk. Archival materials stored in historic structures with damaged ceilings, boards, finishes and tiles may be contaminated with lead or asbestos, and caution should be used in handling them.

The following list, which is by no means exhaustive, provides examples of potential health and environmental hazards in archival repositories.

- Active mold, such as *Stachybotrys atra*, can trigger allergies, infections and asthma. Dust on collections exacerbates the problem because it absorbs moisture, which in turn allows the growth of mold. People performing renovations/cleaning of widespread fungal contamination may be at

risk for developing Organic Dust Toxic Syndrome (ODTS) or Hypersensitivity Pneumonitis (HP). ODTS may occur after a single heavy exposure to dust contaminated with fungi and produces flu-like symptoms. It differs from HP in that it is not an immune-mediated disease and does not require repeated exposures to the same causative agent. A variety of biological agents may cause ODTS, including common species of fungi. HP may occur after repeated exposures to an allergen and can result in permanent lung damage.[xxii]

- Decaying cellulosic materials – which form the base of motion picture film, photographic still negatives, X-rays and similar materials -- can out-gas and damage lungs and nearby materials, and pose fire hazards.
- Animal and insect residue -- including bat, bird, rodent and insect corpses, excrement, frass, feathers and nests – carry bacteria and viruses, and can spread disease.
- Friable asbestos particles or similar fibers and lead from ceiling, pipes and flooring can cause brain damage, lung disease and cancer.
- Bacteria, fungi and yeasts can result from animal or insect corpses or waste, flooding, moisture or simply high humidity.
- Arsenic compounds once were used by museums and other collectors as a preservative on sacred objects, cultural patrimony or biological or ethnographic materials as late as the 1980's, although there have been observed incidents of arsenic use after the 1980's. Some of these items are being repatriated and may contaminate language materials at dangerous or deadly levels over a prolonged period, if they were ever stored or handled in the same locations or with the same packaging materials. Arsenic compounds retain their toxicity and once treated objects containing arsenic can never be fully decontaminated. Arsenic causes both short-term and long-term effects including respiratory and gastro-intestinal problems and various cancers and reproductive problems. [xxiii], [xxiv]
- Historic photographic equipment can contain arsenic, mercury and other dangerous compounds, sometimes in deadly amounts. Mercury can cause nervous system damage including loss of coordination, tremors, and mood and personality alterations, as well as kidney damage and birth defects.
- Fire- or flood-exposed archival materials can contain mold, soot or PCB contaminations, which can cause disease.
- Radon created from the breakdown of uranium in soil, rock and water can out-gas into buildings through cracks, gaps, cavities walls, floors, joints and service pipes, and can cause lung cancer.[xxv] While radon does not contaminate an object per se, it can contaminate work spaces especially in older, historic buildings.

General Guidelines for Handling Hazardous Materials or Contaminated Objects

Before beginning an inventory of language materials and objects, one should consult a conservator, chemist, industrial hygienist or toxicologist, or a combination of these professionals, to develop a holistic plan, a collections survey and a written policy for dealing with hazardous or contaminated objects. The policy should cover new hazards, including hazards as they may be discovered in the collection, new objects as they enter the collections and incoming loans. The policy should also cover documenting and labeling hazardous or contaminated item in two places: 1) in the database or catalogue as part of the documentation of the item, and 2) attached to the item itself.

In most instances, the best way of minimizing risk is simply to handle materials carefully and thoughtfully. Gloves should be worn when handling materials, not only to protect the material, but to protect the person doing the handling. It is also a good idea to wear a lab coat, mask and goggles in the storage area. Gloves, masks, goggles and lab coats should be washed frequently, but not with clothes or other items. In instances when gloves are not worn, care should be taken not to touch the mouth, nose or eyes after handling material, and hands should be washed thoroughly.

People should not spend long periods of time in closed storage areas and these areas should not be used as work places.

In storage areas, it is unwise to eat, drink, smoke, take medication, apply lipstick, use hand lotion, insert or remove contact lenses, lick fingers or put thread, pencils or anything in the mouth.

A dust particle mask will work as a barrier against airborne particles, but not as a barrier against fumes. If people in the storage area are allergic to any of the above-listed materials, a fit-tested respirator equipped with a high efficiency particulate air (HEPA) filter can be worn. Before wearing any respirator (defined as any close fitting face mask), it is important to have a medical evaluation and a fit-test.[xxvi]

Storage and work areas should be kept clean and free of dust and debris that can harbor harmful materials. Work areas should be cleaned with a HEPA-fitted vacuum.[xxvii]

If you conclude that you cannot safely manage any materials in your collections, consider isolating them or offering them to another archive or repository with suitable facilities and safeguards.

If cultural items in the language materials collection have been repatriated from museums that may have used poisons as preservatives, it is imperative to test them and to address their health and safety impact on people and materials.

A Native nation or language community must make policy decisions about collecting and housing language materials, in the event that any of the language materials are living beings or representations of sacred beings and, if so, how they are to be treated.

The language collections policy should all address all pertinent cultural considerations regarding the care, treatment and housing of cultural items. Many storage and preservation methods – such as freezing, plastic bags, anoxic treatments and pesticide applications – are believed to endanger living beings and sacred objects. Furthermore, isolation of contaminated collection objects may conflict with the need to have culturally associated objects together.

Alternatives to Pesticides and Sporicide in Archive and Museum Collections

The Integrated Pest Management (IPM) program is the standard for federal archives, museums and buildings, and can be modified for non-federal entities. The IPM strategy was developed in the late 1970's and early 1980's to reduce risk from pests and pest management related activities affecting the public, employees, park resources and the environment.

IPM is a decision-making process which coordinates the use of pest biology, environmental information and available technology to prevent unacceptable levels of pest damage by the most economical means while posing the least possible risk to people, property, resources and the environment. In IPM, the goal is not to eradicate pests but to keep them from overpopulating an area where they could affect visitor safety, harm resources or damage historic areas.-[xxviii], [xxix]

A model description of developing an IPM strategy for archival and/or museum collections appears in the National Park Service Museum Handbook, Part I, Chapter 5, "Biological Infestations."

Pests: Even with an IPM in place, infestations can occur. Prevention is always better than the cure, but when pests are found you should: isolate any objects to prevent the spread of infestation; identify the pest and where it is in its life-cycle; clean infested areas; and decide on the most appropriate treatment.

Two major alternatives to pesticide fumigation are temperature treatments and modified atmosphere treatments. With temperature treatments, utilizing a deep freeze unit (rather than a common household freezer) capable of lowering temperatures to -18°C or below within 24 hours for two weeks is optimal for killing all pest species with little harm to objects. The objects should be placed in sealed bags and, when treatment is finished, objects should remain unsealed until they have reached room temperature to prevent condensation on the object.[xxx]

Modified atmosphere treatments utilize specialized airtight containers and either exclude oxygen (anoxia)[xxxi] or introduce gasses such as nitrogen or carbon dioxide. Local or regional pest control companies should have the equipment and trained personnel necessary to control pests utilizing more "green" friendly options.[xxxii]

***Mold**:* Most libraries with mold problems may find that proper temperature and humidity controls and non-chemical techniques, such as book vacuuming with HEPA-filtered machines, work just fine to control a moderate outbreak. However, those who find that standard treatments are not enough to stop mold growth can consider using chlorine dioxide for its effectiveness as a sporicide. [xxxiii]

Chlorine dioxide has a strong safety level for library employees and visitors and is an effective alternative to thymol, which is known for its possible carcinogenic properties. Chlorine dioxide is packaged in self-activating packets and is hung with wire ties between bookshelves in a closed area. The treatment is especially effective in rooms that have fluctuating temperature and humidity levels- which are especially favorable conditions of mold blooms.[xxxiv]

Rodents: Hantavirus pulmonary syndrome (HPS) is a deadly disease transmitted by infected rodents through urine, droppings, or saliva. Humans can contract the disease when they breathe in aerosolized virus. HPS was first recognized in 1993 and has since been identified throughout the United States. Although rare, HPS is potentially deadly. Rodent control remains the primary strategy for preventing hantavirus infection. The CDC offers advice with their community health campaign "Seal Up! Trap Up! Clean Up!" The CDC recommends rodent control by sealing up holes inside and outside buildings to prevent entry by rodents. Trap rodents in and around buildings to help reduce the population. And finally, clean up urine and droppings and clean up rodent food sources and nesting sites.[xxxv]

Resources on Hazardous and Contaminated Materials

The following list is a starting point for background information on the handling of hazardous or contaminated objects and materials in your collection. Note: Most U.S Government agencies have American Indian and Native Alaskan liaison offices and are good sources of information for publications and contacts for developing policy and procedure plans, obtaining grants, and list local and regional contacts.

University and Non-Profit Websites:

Conservation OnLine (CoOL), a project of the Preservation Department of Stanford University Libraries, is a full text library of conservation information, covering a wide spectrum of topics of interest to those involved with the conservation of library, archives and museum materials. Website: http://palimpsest.stanford.edu/

The Northeast Document Conservation Center (NEDCC) seeks to improve the preservation programs of libraries, archives, museums, and other historical and cultural organizations; to provide the highest quality services to institutions that cannot afford in-house conservation facilities or that require specialized expertise; and to provide leadership to the preservation field. Website: http://www.nedcc.org/#

The Arizona State Museum is a national leader in developing novel conservation methods for repatriated materials to tribal communitites under the Native American Graves Protection and Repatriation Act (NAGPRA). Website:http://www.statemuseum.arizona.edu/index.html

U.S. Government Websites:

The National Park Service operates the Museum Management Program (MMP), which is part of the National Center for Cultural Resources Stewardship and Partnership Programs that provides national program support functions for park resources. It includes online publications, such as The Museum Handbook and the Conserve O Grams Technical Leaflets Series, which contain many chapters on health and safety issues. Website: http://www.cr.nps.gov/museum

The National Park Service also publishes the online journal "Cultural Resource Management". Website: http://crm.cr.nps.gov/issueindex.cfm

The American Indian Environmental Office of the U.S. Environmental Protection Agency coordinates the EPA-wide effort to strengthen public health and environmental protection in Indian Country, with a special emphasis on building Tribal capacity to administer their own environmental programs. Website: http://www.epa.gov/indian/

The Preservation Office of the Library of Congress offers online resources for technical information for librarians and archivists including caring for, handling and storing archival materials. Website: http://www.loc.gov/preserv/preserve.html

The National Archives and Records Administration (NARA) maintains an excellent website and has several online publications dealing with holdings maintenance, including preservation of archival records, shelving of bound volumes and disaster preparedness and response. Website: http://www.archives.gov/

The Smithsonian Center for Materials Research and Education (SCMRE) specializes in research and education in conservation and scientific studies of collection materials. Website: http://www.si.edu/scmre/

U.S. Department of Labor's Occupational Safety & Health Administration's (OSHA) mission is to assure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. Website: http://www.osha.gov/html/a-z-index.html

The U.S. Department of Health and Human Service's Agency for Toxic Substances and Disease Registry (ATSDR) Office of Tribal Affairs (OTA) was established in 1999 in response to tribal requests. The OTA's mission is to support ATSDR in developing policies, procedures, funding, and research that address the environmental health needs of American Indian and Alaska Native populations Website: http://www.atsdr.cdc.gov/tribal/

Other U.S. Government Agencies

Centers for Disease Control - Website: http://www.cdc.gov/ncidod/diseases/hanta/hps_stc/stc_clean.htm
National Institutes of Health - Website: http://www.niehs.nih.gov/airborne/prevent/mold.html
Environmental Protection Agency – Website: http://www.epa.gov/oppts/asstadmn.htm
Food and Drug Administration – Website: http://www.fda.gov/
National Institute for Occupational Safety and Health – Website: www.cdc.gov/niosh/homepage.html
Occupational Safety and Health Administration – Website: www.osha.gov/

Chapter Notes: "What Is a Repository?"

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[1] http://www.usdoj.gov/crt/ada/adahom1.htm. Last accessed 11/22/04.

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[i] Parks, Douglas. "Genesis of the Project." *Revitalizing Indigenous Languages*, edited by Jon Reyhner, Gina Cantoni, Robert N. St. Clair, and Evangeline Parsons Yazzie (pp. 59-83). Flagstaff, AZ: Northern Arizona University. Copyright 1999 by Northern Arizona University.

[ii] The Dublin Core is a cross-disciplinary effort to define elements that help in searching for information on the Internet. The Dublin Core Element Set comprises fifteen elements which together capture a representation of essential descriptions of resources available through libraries of documents and text on the Internet. Usually the Dublin Core is used in relationship to metadatabases. Metadata is "data about

data, or information known about an image in order to provide access to the image. Usually includes information about the intellectual content of an image, digital representation data, and security or rights management information."[ii] Internet enabled databases are databases designed to function effectively in Internet environments.

[iii] Indigenous Language Institute. 2000-2004. "Lenape Lessons Now Available on CD-ROM." http://www.indigenous-language.org/sharing/index.php. Accessed on October 25-26, 2004.

[iv] This Internet site can be accessed at http://ulukau.org/english.php. Accessed on October 22, 2004.

[v] Stauffer, Bob. 7/23/04. "Notes on the Hawaiian electronic library project for Suzan." Correspondence between Bob Stauffer and Suzan Harjo.

[vi] American Indian Studies Research Institute. Accessed on October 22, 2004. http://www.indiana.edu/~aisri/the_institute/index.html.

[vii] American Indian Studies Research Institute. http://www.indiana.edu/~aisri/projects/idd/idd.html. Accessed on October 22, 2004.

[viii] To parse a sentence is to divide a sentence into its elements, pointing out the parts of speech and their relationship to each other. It is to describe or analyze a sentence's grammar.

[ix] In linguistics a gloss is a shining, or a clarifying, or a highlighting of a word or phrase.

[x] American Indian Studies Research Institute Accessed on October 22, 2004.. http://www.indiana.edu/~aisri/projects/atp/atp.html.

[xi] American Indian Studies Research Institute. Accessed on October 22, 2004. http://www.indiana.edu/~aisri/cdel_sound_lab/index.html.

[xii] First Voices Project, http://www.firstvoices.com, accessed October 26, 2004.

[xiii] Hunter, Jane, Koopman, Bevan, and Sledge, Jane. September 2002. "Software Tools for Indigenous Knowledge Management." http://archive.dstc.edu.au/IRM_project/software_paper/IKM_software.html. Accessed October 26, 2004.

[xiv] Sybase. October 28, 2003. "Distributed Database." searchDatabase.com Definitions. http://searchdatabase.techtarget.com/sDefinition/0,,sid13_gci933754,00.html. Accessed October 26, 2004.

[xv] Hunter, Koopman, and Sledge. October 26, 2004.

[xvi] Hunter, Koopman, and Sledge. October 26, 2004.

[xvii] Fishman, Joshua. 1996. "What Do You Do When You Lose Your Language?" *Stabilizing Indigenous Languages*. G. Cantoni, Ed. Flagstaff, AZ: Center for Excellence in Education, Northern Arizona University.

[xviii] Khlief, B. 1991. "The place of Arabic in identity maintenance of Moroccans in The Netherlands: An exploratory study of some school textbooks." In K. Jaspaert & S. Kroon (Eds.), Ethnic Minority Languages And Education. Amsterdam: Swets & Zeitlinger.

[xix] *Almasude, Amar. 1999. "The New Mass Media and the Shaping of Amazigh Identity." Revitalizing Indigenous Languages*, edited by Jon Reyhner, Gina Cantoni, Robert N. St. Clair, and Evangeline Parsons Yazzie. Flagstaff, AZ: Northern Arizona University.

[xx] "Tohono O'odham (Papago) Literature. June 9, 2004. http://www.indigenouspeople.net/papago.htm. Accessed October 29, 2004.

[xxi] http://www.usdoj.gov/crt/ada/adahom1.htm. Last accessed 11/22/04.

Endnotes for Hazardous Materials and Contaminated Objects in Archive and Museum Collections

[xxii] http://www.cdc.gov/nasd/docs/d001001-d001100/d001027/d001027.pdf Last accessed 12/18/04.

[xxiii] National Park Service, Conserve O Gram, Number 2/3, Arsenic Health and Safety Update, September 2000.

[xxiv] Health and Human Services, Agency for Toxic Substances and Disease Registry http://www.atsdr.cdc.gov/tfacts2.html Last accessed 12/21/04.

[xxv] National Park Service, Curatorial Safety, January 2003, "Have Your Curatorial Areas Been Tested for Radon?"

[xxvi] National Park Service, Conserve O Gram, No. 2/10, August 1998. "Hazardous Materials In Your Collection".

[xxvii] www.mgfnsw.org.au/resources/Research/hazardousmuseum.php. Last accessed 11/17/04.

[xxviii] http://www.nedcc.org.plam3/tleaf311.htm Last accessed 12/20/04.

[xxix] http://www.palimpest.standford.edu/byauth/jessup/ipm.html Last accessed 12/20/04.

[xxxi] National Park Service, Conserve O Gram, No. 3/9, May 1999. “Anoxic Microenvironments: A Treatment for Pest Control”.
[xxxii] National Park Service, Conserve O Gram, No. 3/8, August 1998, “Controlling Insect Pests: Alternatives to Pesticides”.
[xxxiii] Abbey Newsletter, Vol. 18, No. 6, October 1994. “Mold as a Threat to Human Health”.
[xxxiv] Abbey Newsletter, Vol. 26, No. 6, October 2003. “Chlorine Dioxide: A Treatment for Mold In Libraries”.
[xxxv] http://www.cdc.gov/ncidod/diseases/hanta/hps_stc/stc_spot.htm. Last accessed 12/07/04.

Chapter 4: How to Build Infrastructure to Preserve Native Language Materials

WHAT IS INFRASTRUCTURE?

Infrastructure is the underlying framework of a system. Here, infrastructure means designing the way in which a Native language repository system will function. This includes describing the interrelationships between human resources, physical locations of materials and access points, the hardware needs for various programs and ethical standards for use of cultural properties.

In designing and implementing the repository, the planners must consider the need for processes to be used in sharing materials. Among these will be the need:

- to protect original materials;
- to assure that materials are used for language purposes of the community;
- to regulate outside access to materials; and
- to provide copies of materials, when appropriate, to national, regional, tribal and language program repositories.

To implement this planning, the repository will need to develop written standard operating procedures, train staff to use these procedures and approve the necessary administrative forms and enforcement procedures.

The purpose for this planning should be the goal of making language materials, wherever they may be located, accessible where they are most needed -- in Native communities. The repository planners should also recognize that such access will probably increase as the language program increases its use of technology. This will mean training all those who will be using the repository to improve the teaching and learning of the language. This chapter describes a proposed infrastructure to reach the goal of using the language materials to best serve the needs of all those who will benefit from using them to preserve the language.

The Native Languages Archives Repository Project has focused on the need to provide an orderly system of support for accessing language materials by Native language activists in the community and elsewhere. This addresses the human aspect of the system by setting forth ethical considerations, training requirements, non-Native access and regulation, sharing considerations, enforcement of regulatory requirements and the development of a system of standard operating procedures to assure the smooth functioning of the infrastructure.

How Native communities or organizations deal with or develop their own internal administrative systems is not specifically addressed here because of the great diversity that exists, as well as their independent right to adopt their own systems. Instead, the general organizational ideas for an infrastructure are presented in a way that ought to allow for those making decisions about the repository to discuss how to improve access to the materials for all who would benefit from that access.

The overall concept of any infrastructure is of a bridging nature, in the sense of recognizing the separateness of Native communities, organizations and institutions of higher education.

Human Resources

There are many different types of people who should be involved in a language program. Among the most important are those people who already speak the language. Some may be reluctant to participate, for a number of reasons. Those working in the language may need training in the use of materials, instruction on the use of technology and information on learning and teaching methods. In some tribes and language communities with few speakers, care should be taken to try to persuade them to participate. Some may be passive speakers who understand the language, even though they have not spoken it much. Their knowledge is valuable because they may have extensive vocabulary knowledge

and they know how the language is supposed to sound. Another issue to be taken into consideration is participation by people who have less than their full set of teeth. They may be uneasy about participating because they know that they have a hard time pronouncing the language correctly. There may also be people who are not fluent, but who may have knowledge of specialized vocabulary in areas like crafts. Of course, some of these people may not live on tribal lands, and finding them may be a challenge.

Other people who should be involved are professional educators, who are aware of the many types and systems of teaching and learning models, appropriate techniques for the teaching of different types of languages and methods of testing fluency to evaluate the language program. These educators need the cooperation of the language teachers to do their work effectively, especially if they are participating in the design of the materials.

The program may also wish to consider using specialists as evaluators. Among these would be historians and anthropologists to help find older materials and linguists to help with the design of methods and materials.

Place

The learning place may be on or off tribal, intertribal or community lands. Therefore, tribal, intertribal or community control or support may be different depending on location. Some programs may want to consider the security of materials within their workplace; it may be very difficult to replace stolen materials.

There is much information in other parts of this Reference Guide to assist those planning space for their own repositories. As our Archivists have stated, consider light, humidity and temperature, as these may have a bad effect on the condition of materials. Basements are usually poorly suited for storing archival materials.

The use of technology in the learning place should also be planned for; technology may require extensive remodeling of older structures, often called retro-fitting. Technological change is inevitable and this should be considered in planning and designing space for the repository. New structures should fit the group's cultural ideas of structure as well as provide for newer technology that may be helpful.

Types of Programs

There are many types of language programs, both on or off tribal or community lands. Programs may vary, for example, in the amount of formality, numbers and types of students (Native and non-Native, children or adult, etc.), who is sponsoring the program and length of time students are taught. Some types of programs are described below.

1. Tribally-run or community-run programs. These may be, for example, a part of a tribally-run or community-run Head Start program, after school program, special summer program or a program through a tribal, intertribal or community television, radio or web program. Although the tribal government, intertribal coalition or language community organization may have more control over these kinds of programs, much care must be given to insulating them from politics, as changes in personnel often disrupt the production and safeguarding of materials as well as affect the quality of teaching.

2. Privately-run programs. These programs may be particularly cautious in their dealings with the tribal government or intertribal coalition, as they value their independence. They should be approached in the spirit of cooperation. They may value support from the tribal government or intertribal coalition in the form of assistance in recruiting instructors and resource people, cooperation from the tribal education and cultural programs and, of course, funding.

3. Elementary and secondary school programs. These may be run by a public school district, a tribe, an intertribal coalition, a language community, the BIA or a private institution. These schools may all be impacted by the need to comply with state certification standards for language instructors. These standards can often be negotiated through agreements between the tribe and the state's education department, for example. Such an agreement is usually called a Memorandum of Understanding (MOU) or a Memorandum of Agreement (MOA).

4. College and university programs. These programs are especially valuable as they may provide instructors for the other programs. Although some of these people may seem far removed from the program's planners and instructors, they may have knowledge of language instruction or access to finding historical or other materials that may be vital for the success of the program. They may also be a resource for professional skilled work. It may be particularly important for these institutions to receive copies of teaching materials to use to teach students to work from these materials. Indian institutions of higher education, such as the Institute of American Indian Arts and tribal colleges and universities should be given special consideration.

5. Informal programs. These may be as simple as grandparents regularly meeting with grandchildren, elders speaking the language during a tribe's senior lunch program, or small groups meeting in the evening with speakers. These programs are valuable because the participants are doing this voluntarily. Any suggestions or materials provided to these groups may be much appreciated; however, great care must be taken to avoid inadvertently crushing the initiative of these groups.

In the interest of coordination, whatever can be done to encourage cooperation in the sharing of information between these programs would probably improve the language's chance of surviving. The appropriate uses of traditional knowledge could be included in this cooperation.

ETHICAL STANDARDS FOR USE OF CULTURAL PROPERTIES

A priority consideration for each language program is the relationship between the preservation of language materials and the preservation of other cultural property. It would be good if the programs were coordinated to the extent that each is aware of what the other holds and of the methods used to preserve the materials. Those with existing Codes of Ethics may wish to incorporate and amend them to accommodate infrastructural concepts that are presented in this chapter.

Each program should become aware of the Native nation's or language community's formal or informal directions on the use of cultural materials. Guidance may have to be sought from the governing body, the cultural program, tribal attorney or other authority.

Usually, the directives will have to do with restrictions on the use of materials, but also may include directives on contacts with outside people.

CONSIDERATIONS IN SHARING MATERIALS

Each language program must take care in the gathering of information for the creation of materials for the use of the program, and perhaps for later deposit in a national repository, that each piece of information is carefully designated as to its source and any conditions, instructions or restrictions.

In gathering information, care must be taken to assure that the individual giving the information understands that:

- the information will be used to develop materials for the use of teaching the language;
- the materials will be preserved;

- the students of the language may or may not include tribal members, as the case may be;
- the materials may or may not be made available to people other than students, including those preparing the materials, those revising the materials, a funding agency, researchers, those preparing materials for other languages and others, as the case may be; and
- the copies of the materials may be deposited in a national repository, where their use may be restricted by the program that is gathering the information.

It is usually appropriate to clearly allow for the sharing of the information with the descendants and/or the extended family of the person giving the information, and/or of that person's clan or other cultural or social group.

It may be that the information giver objects to one or more of the uses of the information to be given, in which case a reasonable accommodation should be negotiated.

If there is not informed consent to the uses of the material, the information should not be used.

It may be prudent to prepare a consent form along the following lines to be signed by those giving information. A model consent form has been provided in the second part of this chapter.

Preparers of material should also clearly understand the uses of the material they prepare and should be made aware of any restrictions on the uses of specific information in the preparation of the materials. In addition, they should clearly understand any contract they sign regarding the ownership of the copyright of the materials.

A simple statement, such as the following, should be sufficient:

> **"I understand that the copyright to the materials I prepare belongs to _____, meaning that _____ alone will have the power to publish copy and use the materials."**

If there are restrictions on the students using the materials, these restrictions should be explained to the students in an age-appropriate manner at the beginning of each term.

If there are restrictions on the use of the materials by people outside the program, these should be clearly stated before the person is allowed to examine the materials.

It may be prudent for the program to design a form along the lines of a "Consent to Restrictions" form for the person to sign**.** A model form is provided in the second part of this chapter. The important elements of the form are the signer's statement that the restrictions have been explained, are understood and will be followed.

A record should be kept of each time materials are examined, including which materials were examined and the name of the examiner.

In addition to restrictions by those who give information to use in preparing the materials, the language program, especially if it is not a tribal program, should seek and consider restrictions desired by the tribe's or tribal coalition's governing body, its cultural program, its social structure and others knowledgeable in the culture of the tribe(s) and cultural context of the language. If the program chooses not to follow a proposed restriction, then an explanation of why the program will not follow the restriction should be prepared and given to the proposer of the restriction. This document may be of use in negotiating an accommodation with the proposer.

If restrictions have been placed on materials or information, care must be taken to safeguard and monitor access to the materials.

Culturally sensitive materials must be carefully provided for. Any consultation about culturally sensitive material must begin with the supposition that there are things the language program does not know. The language program should respect the sacred knowledge contained in rituals and ceremonies and not force the religious practitioners to participate if they do not desire to do so. Because of the tradition of sharing, programs must be very careful not to force or pressure the religious practitioners into sharing their knowledge.

Because some materials may be culturally sensitive, programs must be careful when sharing materials with non-Natives, or Native people who may not be qualified to share the materials.

In considering the sharing of materials, the program may wish to give special consideration to programs from other tribes or communities who share the same or a similar language.

The preservation of the materials, as well as the information from which the materials were developed, is crucial for the preservation of the culture. There is much information on preservation in the second part of this Reference Guide. The program must do its utmost to assure that all materials are appropriately preserved. This may include moving the materials to another format -- for example, from CD to microfiche -- and preserving a duplicate of the materials off site at a secure location. Fragile materials should be protected, especially when being duplicated.

The program should designate someone to serve as the monitor for its preservation efforts, as knowledge about preservation methods is constantly changing. It is now recognized that certain types of paper, usually called “archival” paper, preserve better. In general, microfiche is now believed to last the longest of all materials. Digital materials are difficult to preserve because the format used for the hard copy, like “floppy disks,” may eventually become unreadable without older equipment. Also, digital formats may deteriorate over time. There is much information available on these issues from professional archivists and provided elsewhere in this Reference Guide.

Any restrictions on the use of information or materials must be stated in clear, easy to understand language, in order to protect against misuse of the restriction.

Any person making copies of the program’s material must be made aware of copyright restrictions on the use of the materials. This can be done through a stamped statement on each page of the copies or through a statement attached to the materials. Such a statement should read: “These copies may be used only for scholarly or research purposes.” The use of the copied materials may also be restricted to a particular use, such as research.

How Materials Can Be Shared

Once restrictions are understood, their application must be clearly followed.

Internal Application

Within the program, the information and materials should be shared with all of those concerned with the preparation, use, evaluation and revision of the materials. If the people engaged in those functions are not program employees, a consent form detailing appropriate restrictions should be used. The “Consent to Restrictions” form could be used for this purpose.

Within the community of those interested in the language program, the restrictions must be stated before the materials are shared or discussed.

Consideration should also be given to sharing knowledge with tribal programs besides those on language and culture. These may include youth and elder programs, any program dealing with the geography of tribal areas, sacred sites, health and social services programs. All programs would benefit from knowing how the work they do is expressed in the language.

Within the Native nation or language community, in any sharing of the materials, the restrictions must be stated, especially if the restrictions have not been the subject of earlier discussion.

External Application

Those with whom the materials should be shared include persons who may be of assistance in revising the materials or improving instruction; a funding agency, if there is a legal obligation to do so; those seeking assistance in designing their own language programs; those researching for scholarly purposes, as their research may lead to improvements in the teaching of languages; and a national repository, if the Native nation or language community wants to participate, in whole or in part, in a national repository system.

In explaining any restrictions on the material, care should be taken to explain the rationale for the restriction, particularly if the person is expected to sign a consent form. For example, it could be explained that a portion of the materials relate to religious ceremonies that the tribe, clan, society or moiety does not wish to have publicized, or that some of the materials relate to incidents in the life of the person who gave the information and s/he does not want that publicized.

A form should be prepared for the signature of outside people seeking to examine the materials. The form should state:

1) that the program is acknowledged as the source of the materials;
2) the reason why access to the materials is desired;
3) the consent to restrictions; and,
4) that applicable copyright laws will be followed.

Another consideration that may be especially important is that sharing of materials may be essential to develop coordinated curricula in different programs, leading to more effective teaching and learning.

TOOLS FOR PRESERVING

Tribal Codes and Ordinances

Tribes have the sovereign powers to govern and to regulate. Tribal powers over the regulation of non-Indians may be limited to those consenting to tribal control through contracting or licensing, or those powers shown to be necessary to regulate conduct affecting the tribe's political integrity, economic security or health and welfare. Although tribes may not have regulatory power outside of their lands and usual and accustomed places, their political power can be used very effectively in those cases where the tribe has carefully planned its strategy. One way to protect this sovereignty is to be very careful in how it is enforced.

Tribal legal acts concerning the preservation of language may be in a code, meaning a gathering of laws on a particular subject, such as culture. The law may also be contained in an ordinance, like one on language. A law affecting a particular program, especially if it does not require or forbid a particular action, but only encourages cooperation, may take the form of a resolution. Laws affecting a tribal program may be in an amendment to the program's policy or procedures.

In Relation to a Program Repository

If the language program is a part of a Native nation, its government may direct other programs to provide materials or cooperate with the repository. If a cultural program is separate from the language program, cooperation between the programs must be established, as the cultural program may also be involved in archiving language materials.

The language program should carefully examine the tribal documents that empower the program to make sure that the program has the power to set up a repository. If there is any doubt as to the program's power to do so, the program should request that the tribal government amend its powers to allow for the operation of a repository. Such an amendment may include: the purpose and expected use of the repository, the repository's relationship with other programs, its use of the tribal attorney's time, the power of the staff to negotiate with or request monies from federal agencies, and the power to contract with suppliers or consultants.

If the language program is not part of the tribal government, the program may request the government to direct specific programs, such as the cultural program, to cooperate with the language program, share or provide materials to it or provide other assistance. Such cooperation should, of course, be mutual. The language program should provide assistance or materials to the Native nation, as requested.

In Relation to Tribal Laws about Language

There are many ways in which tribal governments may encourage and foster the teaching of language.

The tribal government may by resolution endorse or approve of a language program's request for funding, whether it is or is not a tribal program. The Native nation itself may itself fund a language program, in which case care must be taken to assure that appropriate time is granted for its establishment. The governing body may not realize how much time it takes to decide on and develop teaching materials, find and train instructors and devise plans for continuing instruction.

The tribal government may wish to declare the language as the Native nation's official language. This presents very complex issues of governance:

1) If the language is not written or there is no approved orthography, then those steps would need to happen before the government's actions can be written in the language.
2) The need for adequate translators may mean that a declaration should be delayed until the translators are in place.
3) If the declaration is intended to apply to schools, intensive negotiations with the school administrators need to take place long before the implementation of the declaration.

There are many other matters that must be thought about before such an action is taken. Highway signs on reservation roads funded with federal funds, for example, may require extensive preparation.

In Relation to the Protection of Cultural Property

The Native nation may wish to offer protection to some oral cultural expressions occurring inside its jurisdiction. This is an extremely complex action requiring careful study of federal law, as given federal preemption of copyright law, the window for such action is extremely narrow.

The U.S. Constitution gives Congress the power over copyright. For many years, however, state governments regulated some matters of copyright, like oral expressions that were not written, as well as written materials that did not meet federal requirements. Since the revision of federal copyright laws in 1976, it is clear that all conflicting state laws are now illegal. What is not clear is the status of matters, like oral expressions, that are still not covered in the federal laws. Any tribal government contemplating such an action should require a careful legal study before taking action.

The Native nation may wish to grant permission to those proposing to develop materials using its culture. It is relatively easy to devise some type of license for these persons who come to Indian land to obtain information for the materials. Such a license could be enforced through use of civil penalties printed on the license and through use of tribal exclusion and removal powers**.**

An ordinance on this could provide for registration, payment of a fee to the tribe and that a copy of the final product is delivered to the tribe or a tribal program before publication and after publication. Under existing federal law, it is difficult to imagine how such a license could be enforced against those off the reservation except through filing suit on the license. Jurisdiction problems may arise in federal court in such an action; it may need to be filed in the state court where the researcher resides. Of course, the tribe may have a hearing procedure to revoke the license and prescribe appropriate penalties, but the penalties may be difficult to enforce against a researcher living off the tribal lands. The person could be barred from entering the tribal lands if the tribe has the power to exclude non-Indians.

The tribal government may also develop an endorsement procedure whereby materials are submitted to the Native nation for endorsement or approval. Such approval or the lack of it may be communicated to publishers, libraries, professional associations and other purchasers of materials.

The Native nation may protest the development and use of cultural materials as inappropriate and unethical. The Native nation may, for example, object to the use of a particular story included in a children's book by writing a complaint to the author, the publisher and the American Libraries Association. The Native nation may seek the advice of the American Indian Libraries Association. If, for example, the nation learns that an anthropologist or historian has published material that s/he was told should not be made public, the nation may lodge a written complaint with the anthropologist, his/her employer, the publisher and the appropriate professional associations. Professional associations often have codes of ethics enforceable against those who transgress them.

One of the main reasons why the passage of laws must be done with such great care is that people expect laws to be enforced. When laws are passed swiftly, there is often a lack of consideration for how the law is to be enforced. In the case of language laws, often so much preparation is necessary for the law to be implemented that there is a danger that the law will be ignored because it is impossible to work with. This undermines the tribal citizen's faith, not just in this law, but in other laws as well. This unhappy situation may well lead to a problem with the imposition of a rule of law on the tribal lands. Tribal citizens may conclude that instead of a rule of law, where laws are reasonable, passed in a reasonable manner and amended as necessary, they are instead under a rule of unreasonable people. This would not be good for the preservation of tribal government.

Under the Native American Graves Protection & Repatriation Act, "Cultural Patrimony" means: "...an object having ongoing historical, traditional, or cultural importance central to the Native American group or culture itself, rather than property owned by an individual Native American, and which therefore cannot be alienated, appropriated, or conveyed by an individual regardless of whether or not the individual is a member of the Indian tribe or Native Hawaiian organization and such object shall have been considered inalienable by such Native American group at the time the object was separated from such group." 25 U.S. C. 3001 (3) (D)

This same type of property right should also prove applicable to the patrimony embodied in songs, ceremonies and other objects and actions that belong to the Indian tribe or Native nation.

To protect its rights to this cultural property, the Native government should declare that it is the rightful owner of the songs, dances, ceremonies or other activities that it believes the Tribe or Nation has ownership of. The Native government should issue a formal declaration of cultural property, asserting rights over a single cultural property or many or all cultural properties. The declaration should assert that the claimed rights are prior and paramount rights extending from a time certain, if the date is known, or from time immemorial.

The Tribe or Nation also should aggressively pursue any recording of these acts done without its approval. The Tuolumne Band of Me-Wuk Indians recently won such a case against a person who recorded ceremonies with the approval of a member, but without Tribal approval.

Operational Procedure

Sample Forms

Consent to the Use of Language Information

I, ___(Name)_____, agree to provide information to _____(Program)_____ to be used to prepare materials to teach the _____ language. I understand the following and have had explained to me that:

- **the information will be used to develop materials for the use of teaching the language;**
- **the materials will be preserved;**
- **the students of the language (may) (may not) include tribal members;**
- **the materials (may) (may not) be made available to people other than students, including those preparing the materials, those revising the materials, a funding agency, researchers, those preparing materials for other languages and others; and**
- **the copies of the materials may be deposited in a national repository, where their use may be restricted by the program that is gathering the information.**

I also understand that I may direct that this information be made available to my descendants or heirs. I (desire) (do not desire) that this information be provided to them.

I desire that the following restriction on the use of the information be observed as closely as possible.

Signature
Address **Signature of unrelated witness**
Date

Consent to Restrictions

I, _____, agree to the following restrictions in return for being allowed to examine the materials presented to me by_____. I desire access to these materials because _____. I understand and have had explained to me the restrictions:

1. **I (will) (will not) be allowed to make a copy of the materials.**
2. **I must respect the integrity of the materials and not injure or deface them.**
3. **I (may) (may not) quote from the materials; if allowed to quote I will credit _____ as the source of the quotation.**
4. **Within the materials I am allowed to examine, I will NOT use materials that have been identified as not for publication.**
5. **I understand the copyright for these materials belongs to _____, with whom I must negotiate for any right to use the materials beyond scholarly purposes. I will observe all copyright laws.**

Signature
Address **Witness signature**
Date
……..

Explanation of Copyright

Copyright is tied in to American ideas about property, specifically in the sense of property as an economic value. It is easy to see how a person can own something s/he can carry, and many Native nations had laws about such ownership and its exchange for other property. It was not so easy for some tribes to understand ownership of land. Yet another type of ownership applies to owning the expression of ideas. This is copyright.

Many tribes have customary laws about expressions. These may include rules about stories or songs. The rules may restrict who can tell the story, when the story may be told and how the right to tell the story is passed to others, for example. The Indian rights and restrictions are a form of copyright, but not the type of copyright that is enforceable outside the reservation or lands of the tribe. Power over copyright was granted to the federal government in the U.S. Constitution, and the U. S. Congress has made that power almost exclusively a federal one.

The idea of American copyright is that the government grants to the person who created the expression specific rights in the expression. The expression is often called the work, to account for the many types of expression protected. These rights in the work itself are considered as a reward and economic incentive to create more works. These rights are called copyright because the main right is the one controlling the making of copies.

History

Copyright began with books. When books were copied by hand, the owner of the book decided who could make a copy. Later, when printing developed, the author sold the book to the printers, who then controlled the making of copies. English printers were granted a monopoly to print books by the king. The first printer to publish a book had the exclusive right to print that book.

The modern idea of copyright began in England in 1710. In the Statute of Anne, named after the reigning monarch, Parliament granted *authors* the right to control the copying of their works, instead of having to sell the work outright to a publisher. Once they registered each work and gave the government a required number of copies, they could control the work for up to 28 years, after which it became free for anyone to copy.

The U.S. Constitution in 1787 granted Congress the power “to promote the progress of science and useful arts…by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries.”(Article I, section 8, clause 8). Early on, as Congress passed laws protecting published works, unpublished works were protected by state laws. The 1909 federal law is the one that formed most people’s ideas about copyright; it was very strict about what steps had to be taken for the work to be protected. It had to be published with notice of copyright, the application had to be properly filled out and copies deposited before the registration was issued.

In other countries, copyright developed differently, with more rights for creators and fewer requirements for copyright. Partly due to the influence of these ideas, Congress completely remade the law on copyright in 1976 (17 U.S.C. 106 and 106 A). This act and its amendments comprise the controlling law today, although for works published before 1978, the older law may still be important. The key provision of the 1976 law is that fixation, or putting the work into a material form, and not publication triggers the existence of copyright. Also, copyright was no longer dependent on registration. The term of copyright was extended. Copyright ownership could be divided among different parties. The act also made the stated category of works an example, rather than a limit.

Works protected now include, but are not limited to: literary works; musical works; dramatic works; pantomimes and choreographic works; pictorial, graphic and sculptural works; motion picture and other audiovisual works; sound recordings; and architectural works.

Works not protected include those not fixed, titles, listings of ingredients, ideas or concepts and information that is common property and contains no original authorship (like a ruler or standard calendar). Works produced by the federal government were once uniformly not covered, but now many works produced with federal monies are allowed to be copyrighted by the creators, depending on the terms of the federal contract.

The website of the U.S. Copyright Office, accessible at http://www.copyright.gov/, under the publications tab has a series of plain language explanations of many aspects of copyright law.

To be protected, the work must be original, which is not at all comparable to the novelty requirement in patent law, a substantially different type of protection. The work must be original to the author; it can even have the same plot or ideas of another work, as long as it is *expressed* differently.

The work must be fixed in a tangible medium or copy. Tangible means capable of being perceived, reproduced or otherwise communicated, either directly or with the aid of a machine or device. The work must exist for a time, although even cake icing designs have been copyrighted. Any writing or recording of any kind meets this requirement.

Although registration is no longer required, it is often wise to do so as it provides anyone seeking to make illegal use of the work with notice that the work is protected. Registration is required for works published in the U.S. before a lawsuit can be filed against someone infringing the work. Infringement means using the work without the permission of the copyright owner. Registration also means that specific damages and attorney fees will be available when someone infringes the work.

A “compilation” is a work that is formed by assembling material that already exists. A collection of Indian stories written by others would be a compilation. The editor of the compilation would have a copyright in the compilation. The authors of the individual stories have their own copyright in each story and would have to consent to having their story in the compilation. This consent is a license to include the work in the compilation.

A “derivative work” is a work that transforms an existing work, for example, turning a story into a play, or translating the existing work into another language. Each work receives its own copyright to the new material that was created, although the creator of the derived one must have the permission of the copyright owner of the original work.

There are two types of “works for hire.” The first is when an employee, as part of his/her job, prepares the work. The second is when an independent contractor is commissioned to produce the work, in that case there should be a written agreement specifying that the work is one for hire and that the copyright belongs to the one who commissioned it.

If there is no written agreement, or if the agreement is not clear, a court will look to the facts surrounding the case, including the amount of control exercised over the contractor as the work was prepared. Only certain categories of work may qualify as works for hire, they can be part of a collective work or compilation, an instructional text, or a supplemental work (such as the foreword or index of a book).

When more than one person creates the work, “joint ownership” is created if that was what each party intended. Each creator is a co-owner and must account to the other owners when dealing with an outside party.

A “collective work” is formed when the work is made up of works individually copyrighted, like an issue of a magazine or an anthology of short stories. The preparer of the collective work must have the permission of the creators of each work, and the preparer only has rights over the collective work, not to use the individual works for other purposes.

Ownership and Transfer of Ownership

The owner of a copyright can only transfer the copyright to another by a written agreement, often called an assignment. The agreement may be recorded with the Copyright Office, but if the agreement is what is called a security agreement, meaning that the copyright is the security for the payment of a debt, it must be recorded.

It is important to realize that the copyright ownership is separate from the work itself. The owner of a work may sell the work itself without selling the copyright, which stays behind with the creator unless there is an assignment of the copyright.

The owner may also grant a license, a right to use the work for a specific purpose. The license may be an exclusive one, meaning only the licensee may use the work for that purpose, or non-exclusive, allowing the owner to permit others to do the same thing. Licenses may be granted orally or by a course of conduct that implies that the person has the permission to use the work.

The Exclusive Rights of Copyright Owners

The main right of a copyright owner is the right to copy (reproduce) the work; that is, duplicating it in any form. Making a drawing of a photograph, for example, would infringe the reproduction right of the copyright owner. For the right to be violated a copy has to be made, so that the public reading of copyrighted chapter from a textbook would not be a violation while including the chapter in another work without permission would be.

The right to control derivative works gives the copyright owner the right to control the creation of another work based on the first. This would include creating a video lesson based on a chapter of a language textbook.

The right to control distribution of the copies relates to publication of the work. Publication means the distribution of copies to the public by sale or other transfer of ownership, or by renting, leasing or lending. The “first sales doctrine” holds that once a particular copy has been sold under the copyright owner’s authority, the owner’s right of distribution ends and the buyer may loan, rent or sell it.

Other rights apply only to certain kinds of works. The right to control public performance and display applies to literary, musical, dramatic choreographic, pantomime, motion pictures and audiovisual works. The performance right allows the owner to control any performance of the work whether or not for profit. The right of public display includes graphic and sculptural works and allows the owner to control the “first sale” doctrine, the public display of the work.

“Moral rights” are a common feature of owner’s rights in other countries; they protect the creator’s reputation and control over alteration of the work. In the United States some of these rights apply to certain visual works; many other visual works like maps and books are excluded. These rights give the artist the right to claim or disclaim authorship and to protect the integrity of the work against destruction, mutilation or modification. These rights only apply to the creator and only exist during the creator’s lifetime.

Fair Use Doctrine

Evolving initially through the court decisions later confirmed by statute, “fair use” is a major limitation on the copyright owner’s rights of control. The doctrine allows copying and use of the work for purposes such as criticism, news reporting. teaching and research. Four factors are considered in deciding whether the use is a "fair” one

1. The purpose and character of the use, including whether the use is commercial in nature or for nonprofit commercial purposes.

2. The nature of the copyrighted work.
3. The amount and substantiality of the portion used in relation to the work as a whole.
4. The effect of the use on the potential market for or value of the work.

Library exemptions also exist. Under 17 USC 108, all libraries and archives are granted rights in the work to study, research, loan to other institutions, archive and preserve the work.

Duration

The term of copyright for a particular work depends on several factors, including whether or not it has been published and, if it has, the date of first publication. As a general rule, for works created after Jan. 1, 1978, copyright protection lasts for the life of the author plus an additional 70 years. For an anonymous work, a pseudonymous work or a work made for hire, the copyright endures for a term of 95 years from the year of its first publication or a term of 120 years from the year of its creation, whichever expires first. For works first published prior to 1978, the term will vary depending on several factors. To determine the length of copyright protection for a particular work, consult chapter 3 of the Copyright Act (title 17 of the *United States Code).* More information on the term of copyright can be found in Circular 15a, *Duration of Copyright*, and Circular 1, *Copyright Basics*.

Renewal

Works created on or after Jan. 1, 1978, are not subject to renewal registration. As to works published or registered prior to Jan. 1, 1978, renewal registration is optional after 28 years but does provide certain legal advantages. For information on how to file a renewal application, as well as the legal benefit for doing so, see Circular 15, *Renewal of Copyright*, and Circular 15a, *Duration of Copyright*, available from the copyright.gov website.

Publishing

Before the 1976 Act, authors usually sold (assigned) the copyright in their works to the publisher. Since then, authors usually keep the copyright and only grant the publisher a license to publish the work. The license is part of a written contract which specifies the amount of advances, royalties and the terms and conditions of the rights granted to the publisher.

Other Intellectual Property

Other forms of intellectual property are governed by their own statutes.

Patent law's role is to grant exclusive right in new and useful inventions and improvements to inventions. A patent grants the exclusive right to "make, use, or sell' a "new and useful process, machine, manufacture or composition of matter." The requirement that the work be new here means novel or not existing before. It also must not be obvious. This contrasts with copyright's requirement of originality which requires only a minimal amount of creativity, and allows the copyrighting of similar works. No one else can patent any similar invention. A patent lasts twenty years.

A trademark is tied to commercial purposes. A trademark can be a name phrase or mark. When a trademark is registered, no one else may use it to sell similar products using the word or mark. It is possible that the trademark can be used to sell something else, as long as it is used in such a way that the public is not confused. Trademark owners must be careful that the trademark does not come to be a generic term; this is how the trademarks to "aspirin" and "thermos" were lost.

A use of copyrighted work, except for the fair use exceptions is an infringement.

Repository Copyright Policies

I. Intent, Objectives and Scope

A. Intent - The intent of this policy is to respect and apply the copyright laws applicable to the materials held in this repository, while also respecting the rights of the Native Peoples to control the use of their cultural property.

B. Objective and Scope - The objective of this policy is to provide guidance on copyright matters to those working in and using the repository, as well as direction in Indian control of the use of materials. The scope is intended to include all materials entering the repository.

II. Compliance with Native Directives - Restrictions

A. What May be Restricted - Restrictions may be of any kind whatsoever. Examination of the materials may be prohibited or restricted to tribal citizens or available to selected persons, for example, only to those with permission from the Native nation or program. Copying the materials may be prohibited or allowed only for specific purposes.

B. Statutory Restrictions - Statutory restrictions are those imposed by any tribe wishing to take advantage of the 1992 Native American Languages Act Amendment's provision 9 (codified at 42 USC 2991b-3(f) (2) (D) (ii)) not to permit redistribution of copies provided or to restrict in any manner the use or redistribution of the materials produced by the tribe.

1. Notice to Repository - A Native nation or intertribal coalition using this provision should do so in writing, preferably signed by the responsible official(s). If the restriction is orally transmitted to the director or a staff member, such restriction should be immediately written and signed by the person to whom it was transmitted. If the restrictions are unclear, the director may seek clarification from the entity issuing notice.

2. Item Record - All the materials transmitted to the repository should be examined for such restrictions and the restrictions must be noted on the item's record, including a statement that the restriction is a statutory one.

3. Effect of Restriction - A statutory restriction must be strictly observed. Any statement from the Native nation or intertribal coalition allowing an exception for a particular researcher should be verified.

C. Non-Statutory Restrictions of Funded Materials - Non-statutory funded materials are materials produced by entities other than tribes with funding provided under the Native American Languages Act Amendment of 1992. The producer of these materials may request restrictions on the use of the material. It must be made clear to the requester that, unless the requester is the copyright holder, compliance by researchers will be voluntary. The requester should be urged to provide the reasoning behind the request.

1. Discretionary Power of the Director of the Repository - The director must carefully consider the request for non-statutory restrictions and may negotiate with the requester before deciding whether to grant the request. The director will decide whether to honor such a request for restrictions, and may consult with other tribes or entities in reaching a decision.

2. Item Record - If restrictions are granted, they must be noted on the item's record.

3. Voluntary Compliance - If a researcher chooses not to comply with a non-statutory restriction the researcher shall be told of the reasons for the restrictions. The researcher shall then be notified that the requester of the restriction will be notified immediately. The researcher will then be allowed to examine the materials.

D. Notice to Tribes and Others of Materials Received - When materials are received, all relevant tribal governments (other than the one that sent the material, if applicable) should be notified of the receipt of material on their language. At the discretion of the director, such a notice may also be sent to an organization involved in teaching or preserving that language or to a tribal government agency or organization of Native Hawaiians or Native American Pacific Islanders.

1. Content of Notice - The notice should include a summary of the restrictions, if any, placed with the material and information on is the identity of the copyright holder. The notice should provide the Native governments or organizations with the opportunity to request non-statutory restrictions on the use of the materials, explaining that such restrictions will require voluntary compliance by the researchers and that the requester will be notified immediately if the researcher insists on not complying with the restrictions.

2. Treatment of Requests - Any request received as a result of the notice must be treated the same as requests for non-statutory restrictions.

E. Requests for Restrictions from Others - The director may also consider restrictions requested by other persons, treating the request the same as the same as requests for non-statutory restrictions.

F. Examination of Materials

1. Examination of Restricted Materials - Any researcher permitted to examine restricted materials must sign a written statement agreeing to comply with the restrictions before being granted access to the materials.

2. Observation of Restrictions - Care must be taken by all staff to ensure that any restrictions are observed. The restrictions shall be taken into account in the design and operation of the Repository.

3. Copying of Materials - Care should also be taken to ensure that researchers do not have access to reproduction devices, unless permitted to have them. If reproduction is permitted, the reproduction should be done by the Repository.

III. Compliance with Applicable Federal Laws

A. Intellectual Property Laws - The Repository must comply with all applicable federal laws regarding copyright or other intellectual property laws.

Some language or cultural programs may believe that any work about the tribe's culture or language can be used by them without regard to copyright laws. Although sympathy may be expressed for that position, the Repository must make it clear that the Repository itself will comply with all applicable federal laws. Efforts should be made to provide appropriate educational materials to any patron of the Repository objecting to the application of such laws to his/her request.

B. Notice to Researchers - Every researcher shall be given a copy of the following statement:

Copyright in the materials in this Repository may not be held by the federal government and, therefore, the Repository may not be able to consent to its reproduction or use. It is the researcher's obligation to determine and satisfy copyright or other use restrictions when publishing or otherwise distributing materials found in the Repository's collection. Transmission or reproduction of protected items beyond that allowed by fair use requires the written permission of the copyright owners. Researchers must make their own assessments of rights in light of their intended use. More information about U.S. copyright law (Title 17 U.S. Code) is provided by the Copyright Office. [NOTE: This notice is substantially copied from that of the Library of Congress]

C. Information on Copyright Holder - Any researcher desiring information on the copyright holder of material in the Repository shall be provided the information.

D. Other Federal Laws
The Repository will comply with all other applicable federal laws.

IV. Ownership of Copyright

A. Determination of Copyright

1. Ownership of Copyright - In so far as is possible, every work in the Repository will have an entry in its record indicating who owns the copyright in the material. If necessary, research will be done to determine the copyright holder. All material entering the Repository (because it was produced under the Native American Languages Act of 1992) should have the contract under which it was produced included in its record.

B. Notification - If the copyright holder may not be aware that the material is in the Repository, the holder should be notified and requested to provide any information about permissions as well as information that will assist in placing researchers into contact with owners.

C. Reproduction - No reproduction will be allowed for other than fair use of material until the material's copyright is determined.

V. Licensing Agreements

A. Compliance - The Repository should assist copyright holders with information about Copyright Clearinghouse or other arrangements for researchers seeking to use materials for other than fair use.

Memorandum on Available Resources

Problems in the Determination of Copyright

Federal Copyright

Any work produced under a federal grant, should include a copy of the contract under which the work was made. Generally, if the creator is allowed to copyright the materials, there will be a contract provision granting the government unrestricted permission to "use, modify, reproduce, release, perform or disclose" for government purposes. CENDI, an interagency working group of scientific and technical information managers, has a series of explanations of government copyright at in their "Frequently Asked Questions" publication. (http://www.dtic.mil/cendi/publications/04-8copyright.html)

Unknown Copyright Ownership

In the case of works with no immediately discernable copyright owner, the publisher should be contacted as well as the author. To determine the publisher, if it is not readily discernible, Books In Print should be consulted. In the case of articles in journals, Ulrich's International Periodical Directory serves the same purpose.

Circular 22 of the U.S. Copyright Office, accessible at http://copyright.gov/circs/circ22.pdf , provides some guidance on how to examine the work itself, as well as copyright records. A list of publishers is at: http://www.lights.com/publisher/ and at: http://www.literarymarketplace.com/ lmp/us/index_us.asp

There is also a print publication, American Bookseller's Association's Publishers Directory.

To search by author see: http://www.authorsregistry.org/autcondir.html Email inquiries only.

Older Works

Because copyright ownership is dependent upon date of publication, as well as upon the date of changes in the statutes, it is easier to see the information in a tabular format.

For older works, a useful chart on copyright duration has been created by Cornell University: http://www.copyright.cornell.edu/training/Hirtle_Public_Domain.htm

Additional charts and material are listed in footnote 1 at the end of the chart.

Fair use guidance: http://fairuse.stanford.edu/

Safeguarding copyright of audio visual materials http://www.loc.gov/rr/mopic/avprot/copy.html

Classroom copying: http://www.copyright.gov/circs/circ21.pdf

Restrictions on the use of materials

Government use of copyrighted works: http://www.loc.gov/flicc/gc/fairuse.html

Tribal Copyright

Although federal statutes preempt the possibilities of state or Tribal copyright law for topics covered by the statutes, there may be room for tribal laws on matters outside of the scope of the federal statutes. This matter deserves further study, but it may be available for the protection of oral expressions or works that are not works of authorship or lack originality. The topic is briefly discussed in Nimmer on Copyright § 1.01[B][2].

NATIVE AMERICAN ARCHIVISTS

Only a handful of archivists in the United States are Native archivists. The Society of American Archivists (SAA), with a membership of 4,069, lists only five Native archivists on its 112-member Archivists and Archives of Color Roundtable. A Native American Archives Coalition once was part of the SAA Roundtable, with 34 members in 1997. Today, due to an increased interest in establishing archives in Native communities, the number of Native people enrolling in archival training classes is growing.

Of all archivists, curators and museum technicians, approximately 22,000 held jobs in 2002. About 35 percent were employed in museums, historical sites and similar institutions, and 15 percent worked for state and private educational institutions, mainly college and university libraries. Nearly 40 percent worked in federal, state, tribal and local government.

Individuals can prepare for a career in archives through a variety of educational programs. Most entry-level positions require an undergraduate and a graduate degree, together with archival coursework and a practicum. Although archivists have a variety of undergraduate majors, most receive graduate degrees in history or library science. A few institutions offer a master's degree in archival studies. The graduate of an archival studies program should have a thorough knowledge and understanding of archival principles and techniques, and should be prepared to work independently in performing all basic archival functions. The variety and complexity of institutional settings and of archival records and papers require a broad and comprehensive understanding of archival theory and its practical application.

It is possible to learn archival work through on-the-job training, but this is not the recommended route. Most organizations now require formal education and degrees. Many who have learned through on-the-job apprenticeships find that becoming a Certified Archivist -- by passing the exam given by the Academy of Certified Archivists -- is one way to gain the needed credentials in the profession.

The following are some universities that offer degrees in Library Science and/or Archive Studies:

School of Information Management and Systems, UC Berkeley (http://www.sims.berkeley.edu/)
Information School of the University of Washington (http://www.ischool.washington.edu/)
School of Information, University of Michigan (http://www.si.umich.edu/)
School of Information at the University of Texas, Austin (http://www.gslis.utexas.edu/)
School of Information - University of Texas (http://www.ischool.utexas.edu/)
GSLIS at the University of Illinois at Urbana-Champaign (http://alexia.lis.uiuc.edu/)
Indiana University, School of Library and Information Science (http://www.slis.indiana.edu/)
Department of Information Studies, University of California, Los Angeles (http://is.gseis.ucla.edu/)
School of Information Studies at Syracuse University (http://istweb.syr.edu/)
College of Information Studies at Maryland University (http://www.clis.umd.edu/)
Wayne State University, Library and Information Science Program (http://www.lisp.wayne.edu/)
USC College of Library and Information Science (http://www.libsci.sc.edu/)
School of Library and Information Sciences at University of North Texas (http://www.unt.edu/slis/)
University of Arizona- School of Information Resources and Library Science (http://www.sir.arizona.edu/)
School of Information Sciences-University of Tennessee (http://www.sis.utk.edu)
Palmer School of Library and Information Science (http://palmer.cwpost.liu.edu/)
School of Information Sciences at the University of Pittsburgh (http://www.sis.pitt.edu)
Louisiana State University School of Library and Information Science (http://slis.lsu.edu/)
Florida State University School of Information Studies (http://www.lis.fsu.edu/)
University of Hawaii at Manao, Library and Information Science Program (http://www.hawaii.edu/slis/)
School of Information Science and Information Policy at Albany University (http://www.albany.edu/sisp/)
College of Information Science and Technology, Drexel University (http://www.cis.drexel.edu/)
UW-Madison School of Library and Information Studies (http://polyglot.lss.wisc.edu/slis/)
The School of Information and Library Science at the University of North Carolina at Chapel Hill (http://www.ils.unc.edu/)

Department of Library Science- Clarion University of Pennsylvania (http://www.clarion.edu/libsci/)
The Catholic University of America, School of Library and Information Science (http://slis.cua.edu/)
School of Library and Information Studies at the University of Iowa (http://www.uiowa.edu/~libsci/)
School of Library and Information Studies, University of Alabama (http://www.slis.ua.edu/)
University of Missouri School of Information Science and Learning Technologies (http://sislt.missouri.edu/)
School of Library and Information Science at the University of Wisconsin-Milwaukee (http://www.uwm.edu/Dept/SOIS/)
School of Library and Information Management at Emporia State University (http://slim.emporia.edu/)
Kent State University's School of Library and Information Science (http://www.slis.kent.edu/)
University of Rhode Island Graduate School of Library and Information Studies (http://www.uri.edu/artsci/lsc/)
University of Oklahoma School of Library and Information Studies (http://www.ou.edu/cas/slis/)
University of Kentucky School of Library and Information Science (http://www.uky.edu/CommInfoStudies/SLIS/)
Department of Library and Information Science-University of North Carolina at Greensboro (http://www.uncg.edu/lis/)
San Jose State University School of Library and Information Science (http://witloof.sjsu.edu/)
School of Library and Information Science (SLIS) at the University of South Florida (USF) (http://nosferatu.cas.usf.edu/lis/)
Council on Library Technicians (COLT)- Library Technician Programs in the U.S. (http://colt.ucr.edu/ltprograms.html)
Simmons College: Graduate School of Library and Information Science (http://www.simmons.edu/programs/gslis/)
North Carolina Central University School of Library and Information Sciences (http://www.nccuslis.org/)
School of Communication, Information, and Library Studies-Rutgers University (http://scils.rutgers.edu/programs/lis/)
Texas Woman's University School of Library and Information Studies (http://www.twu.edu/cope/slis/)
Graduate School of Library and Information Studies at Queen's College (http://qcpages.qc.edu/GSLIS/)
University of Southern Mississippi School of Library and Information Science (http://www.dept.usm.edu/~slis/)
Dominican University Graduate School of Library and Information Science (http://www.dom.edu/gslis/)

More and more colleges and universities are sponsoring internships and conferences for Native Americans interested in museum, archive or library work. A few examples of current ones are:

The University of Arizona, Arizona State Museum: Tribal Archives, Libraries and Museums: Preserving Our Language, Memory and Lifeways, National Conference II, May 24-27, 2005. The second national conference of tribal archives, libraries and museums will create a network of support for tribal cultural institutions and programs; articulate contemporary issues related to the development of tribal libraries, archives and museums and encourage collaboration among tribal and non-tribal cultural institutions. The Tribal Archives, Libraries and Museums Conference is supported through a National Leadership Grant from the Institute of Museum and Library Services, a federal funding agency in Washington, D.C.

The 2004 National Conference was designed to bring together, for the first time, representatives from tribal libraries, archives, museums, cultural centers and other culturally-related programs. The conference provided a unique opportunity for a variety of professionals to share a common experience of honoring the cultural past while preserving and revitalizing its future. Ideally, collaboration with and among tribes and non-tribal organizations that share the goal of enhancing library, archive and museum service as a means of cultural empowerment and preservation will transpire. The conference also sought to affirm and celebrate the achievements that Native American professionals have made to the field. Native American

library, museum, archive and language professionals served as presenters and speakers throughout the conference program. Finally, the conference intended to increase the professional networks of all the participants.

The Center of Southwest Studies: The Center's Native American Honors Internships program provides select Native students with mentored and paid internships in the following areas: archives, library, museum, and historic preservation. Interns are based at the Center of Southwest Studies at Fort Lewis College in Durango, Colorado, with outreach opportunities at institutions in the Four Corners Region. (http://swcenter.fortlewis.edu/InternNA.htm)

The Western Archives Institute, sponsored by the California State Archives and the Society of California Archivists, is the only program of its kind in the western United States. The intensive, two-week program provides integrated instruction in basic archival practices to individuals with a variety of goals, including those whose jobs require a fundamental understanding of archival skills, but who have little or no previous archives education; those who have expanding responsibility for archival materials; those who are practicing archivists, but have not received formal instruction; and those who demonstrate a commitment to an archival career. Tuition for the program is $650.00 and includes a selection of archival publications. Housing and meal plans are available at additional cost. Admission is by application only and enrollment is limited. The application package for the program is available on the web sites of the California State Archives (http://www.ss.ca.gov/archives/archives.htm) and the Society of California Archivists (http://www.calarchivists.org).

For additional information, contact:
Administrator
Western Archives Institute
1020 'O' Street
Sacramento, CA 95814
(916) 653-7715
Fax: (916) 653-7134
E-mail: ArchivesWeb@ss.ca.gov

SAA then-President Tim Ericson received a 2003 NHPRC grant to hold a special institute in union with the Western Archives Institute for Native American and tribal archivists at the University of Redlands in California. The purpose of the project was to develop a curriculum and class schedule for a Western Archives Institute-Special Institute for Native American and Tribal Archivists (WAI-SI). The grant proposal stated that there were “only a dozen or fewer trained Native American archivists in the United States. As a result there are many repositories, Native American colleges and tribal organizations holding tribal records not under the care of a trained archivist, making those records vulnerable to loss, deterioration, and inaccessibility.” The proposal also stated: This project will support NHPRC’s statutory mission to improve the methods, tools and training of professionals engaged in documentary work. More specifically, it is a step in meeting NHPRC’s Native American Records Initiative category 6, Development of Training Workshops and Records Management Techniques for Tribal Members.

The National Archives and Records Administration in Washington, D.C., offers a two-week archival training course through its Modern Archives Institute[1] twice a year and shorter archival training sessions throughout the year. Two organizations award scholarships to the Modern Archives Institute: 1) the SAA administers two Institute scholarships for persons working in organizations with holdings predating 1825, and 2) the Mid-Atlantic Regional Archives Conference (MARAC) funds the attendance of one participant at each Institute. For this scholarship, an individual must currently be employed in the MARAC region in an archival or archives-related position.

The National Museum of the American Indian: The NMAI Education Division of the Community Services Department goes out to Native communities to give archival training.

Most Native nations and communities are well aware of the need to preserve their organizational and historical documents, especially their language material, but many lack the funds necessary to build a

repository and to send their citizens to obtain archival training. There is a need for federal agencies, educational institutions and organizations to reach out to Native communities with help for the collection and preservation of their historical documents, and especially their language materials, for the building of a repository and for training in archive studies.

Some of the federal agencies which have grant programs are listed below. Many colleges, universities, and private organizations offer scholarships or grants such as those mentioned above.

The Administration for Native Americans
370 L'Enfant Promenade, SW., Aerospace
Building 8th Floor—West
Washington, DC 20447-0002
Phone: 1-877-922-9262
E-mail: ana@acf.dhhs.gov

Institute of Museum and Library Services
1100 Pennsylvania Ave. NW
Washington, DC 20506
(202) 606-8536, Office of the Director
(202) 606-8539, Office of Museum Services
(202) 606-5227, Office of Library Services Programs and Funding Categories
Email: imls@info.gov

National Endowment for the Arts
Nancy Hanks Center
1100 Pennsylvania Avenue NW
Washington, D.C. 20506
Phone: (202) 682-5400
Email: webmgr@arts.endow.gov

National Endowment for the Humanities (NEH)
1100 Pennsylvania Avenue, NW
Washington, DC 20506
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MODEL CODE OF ETHICS FOR LANGUAGE ARCHIVISTS

Introduction

A code of ethics for archivists should establish high standards of conduct for the archival profession.

It should introduce new members of the profession to those standards, remind experienced archivists of their professional responsibilities, serve as a model for institutional policies, and inspire public confidence in the profession.

The term archivists as used in this code is intended to encompass all those concerned with the control, care, custody, preservation and administration of archives.

Employing institutions and archive services should be encouraged to adopt policies and practices that facilitate the implementation of this code.

This code is intended to provide an ethical framework for guidance of members of the profession, and not to provide specific solutions to particular problems.

The principles are all accompanied by a commentary; principles and commentary taken together constitute the Code of Ethics.

The code is dependent upon the willingness of archival institutions and professional associations to implement it. This may take the form of an educational effort and the establishment of machinery to provide guidance in cases of doubt, to investigate unethical conduct, and if considered appropriate, to apply sanctions.

Code

1. Archivists should protect the integrity of archival material and thus guarantee that it continues to be reliable evidence of the past.

The primary duty of archivists is to maintain the integrity of the records in their care and custody. In the accomplishment of this duty they must have regard to the legitimate, but sometimes conflicting, rights and interests of employers, owners, data subjects and users, past, present and future. The objectivity and impartiality of archivists is the measure of their professionalism. They should resist pressure from any source to manipulate evidence so as to conceal or distort facts.

2. Archivists should appraise, select and maintain archival material in its historical, legal and administrative context, thus retaining the principle of provenance, preserving and making evident the original relationships of documents. Archivists should make available historical and documentary records of enduring value. Archivists cooperate, collaborate, and respect each institution and its mission and

collecting policy. Respect and cooperation form the basis of all professional relationships with colleagues and users.

Archivists must act in accordance with generally accepted principles and practice. Archivists must perform their duties and functions in accordance with archival principles, with regard to the creation, maintenance and disposition of current and semi-current records, including electronic and multimedia records, the selection and acquisition of records for archival custody, the safeguarding, preservation and conservation of archives in their care, and the arrangement, description, publication and making available for use of those documents. Archivists should appraise records impartially, basing their judgment on a thorough knowledge of their institution's administrative requirements and acquisitions policies. They should arrange and describe records selected for retention in accordance with archival principles (namely the principle of provenance and the principle of original order) and accepted standards, as rapidly as their resources permit. Archivists should acquire records in accordance with the purposes and resources of their institutions. They should not seek or accept acquisitions when this would endanger the integrity or security of records; they should cooperate to ensure the preservation of these records in the most appropriate repository. Archivists should cooperate in the repatriation of displaced archives.

3. Archivists should exercise professional judgment and protect the authenticity of documents in acquiring, appraising, and processing historical materials. They should not allow personal beliefs or perspectives to affect their decisions.

Archivists should ensure that the archival value of records, including electronic or multimedia records is not impaired in the archival work of appraisal, arrangement and description, and of conservation and use. Any sampling should be carried out according to carefully established methods and criteria. Replacement of originals with other formats should be done in the light of the legal, intrinsic and information value of the records. Where restricted documents have been temporarily removed from a file, this fact should be made known to the user.

4. Archivists should ensure the continuing accessibility and intelligibility of archival materials.

Archivists should select documents to be kept or to be destroyed primarily to save essential testimony of the activity of the person or the institution which produced and accumulated the documents but also bearing in mind changing research needs. Archivists should be aware that acquiring documents of dubious origin, however interesting, could encourage an illegal commerce. They should cooperate with other archivists and law enforcement agencies engaged in apprehending and prosecuting persons suspected of theft of archival records.

5. Archivists strive to preserve and protect the authenticity of records in their holdings by documenting their creation and their custodial history in hard copy and electronic formats. They have a fundamental obligation to preserve the intellectual and physical integrity of those records. Archivists may not alter, manipulate or destroy data or records to conceal facts or distort evidence.

Archivists should advocate good recordkeeping practices throughout the life-cycle of documents and cooperate with record creators in addressing new formats and new information management practices. They should be concerned not only with acquiring existing records, but also ensure that current information and archival systems incorporate from the very beginning procedures appropriate to preserve valuable records. Archivists negotiating with transferring officials or owners of records should seek fair decisions based on full consideration–when applicable–the following factors: authority to transfer, donate, or sell; financial arrangements and benefits; plans for processing; copyright and conditions of access. Archivists should keep a permanent record documenting accessions, conservation and all archival work done. Archivists protect all documentary materials for which they are responsible, guarding them against defacement, physical damage, deterioration, and theft.

6. Archivists strive to promote open and equitable access to their services and the records in their care without discrimination or preferential treatment, in accordance with cultural sensitivities, institutional

policies and legal requirements. Archivists should recognize their responsibility to promote the use of records as a fundamental purpose of the keeping of archives.

Archivists should produce both general and particular finding aids as appropriate, for all of the records in their custody. They should offer impartial advice to all, and employ available resources to provide a balanced range of services. Archivists should answer courteously and with a spirit of helpfulness all reasonable inquiries about their holdings, and encourage the use of them to the greatest extent possible, consistent with institutional policies, the preservation of holdings, legal considerations, individual rights, and donor agreements. They should explain pertinent restrictions to potential users, and apply them equitably. Archivists should discourage unreasonable restrictions on access and use but may suggest or accept as a condition for acquisition clearly stated restrictions of limited duration. They should observe faithfully and apply impartially all agreements made at the time of acquisition, but, in the interest of liberalization of access, should renegotiate conditions in accordance with changes of circumstance.

7. Archivists respect the privacy of donors, users, and individuals and groups who are the subjects of records or who had no voice in their creation or donation. Archivists respect the confidentiality of information in the records in their custody and recognize all legal, social, cultural, spiritual, and indigenous restrictions to access. Archivists respect the privacy of users and their right to maintain the confidentiality of their research and personal information collected as a part of the security procedures of an institution.

Archivists should take care that corporate and personal privacy as well as national security are protected without destroying information, especially in the case of electronic records where updating and erasure are common practice. They must respect the privacy of individuals who created or are the subjects of records, especially those who had no voice in the use or disposition of the materials.

8. Archivists should use the special trust given to them in the general interest and avoid using their position to unfairly benefit themselves or others.

Archivists must refrain from activities which might prejudice their professional integrity, objectivity and impartiality. They should not benefit financially or otherwise personally to the detriment of institutions, users and colleagues. Archivists should not collect original documents or participate in any commerce of documents on their on own behalf. They should avoid activities that could create in the public mind the appearance of a conflict of interest. Archivists may use their institutional holdings for personal research and publication, provided such work is done on the same terms as others using the same holdings. They should not reveal or use information gained through work with holdings to which access is restricted. They should not allow their private research and publication interests to interfere with the proper performance of the professional or administrative duties for which they are employed. When using the holdings of their institutions, archivists must not use their knowledge of the unpublished findings of researchers, without first notifying the researchers about the intended use by the archivist. They may review and comment on the work of others in their fields, including works based on documents of their own institutions. Archivists should not allow people outside the profession to interfere in their practice and obligations.

9. Archivists should pursue professional excellence by systematically and continuously updating their archival knowledge, and sharing the results of their research and experience.
Archivists should endeavor to develop their professional understanding and expertise, to contribute to the body of professional knowledge, and to ensure that those whose training or activities they supervise are equipped to carry out their tasks in a competent manner.

10. Archivists become familiar with and uphold all federal, state, and local laws and statutory requirements pertaining to the permanent maintenance of archival records and archival practice.

MODEL JOB DESCRIPTION FOR LANGUAGE ARCHIVIST

Archivist

DOT Code: 101.167-010

Industry: profess. & kin.

Appraises and edits permanent records of historically valuable documents, participates in research activities based on archival materials and directs safekeeping of archival materials and documents, such as government records, interviews with cultural information givers, material prepared outside the program and dictionaries, vocabularies and all historic and language materials. Analyzes documents by ascertaining date of writing, author or original recipient of material, to appraise value to posterity or to employing organization. Directs activities of workers engaged in cataloging and safekeeping of valuable materials and directs disposition of worthless materials. Prepares or directs preparation of document descriptions and reference aids for use of archives, such as accession lists, indexes, guides, bibliographies, abstracts and microfilmed copies of documents. Directs filing and cross indexing of selected documents in alphabetical and chronological order. Advises government agencies, scholars, journalists, publishers and others conducting research by supplying available materials, explaining restrictions on use of materials and giving information according to familiarity with archives and with the history and culture of the Native nation or language community. Requests or recommends the acquisition of pertinent materials available in libraries, private collections or other archives. Selects and edits documents for publication and display, according to knowledge of subject, literary or journalistic expression and techniques for presentation and display. Native nation and/or language community preference shall apply.

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CONDUCTING A LANGUAGE SURVEY: METHODS TO DETERMINE THE STATUS OF A NATIVE HERITAGE LANGUAGE IN THE COMMUNITY

Many Native nations and language communities do not have an adequate assessment of the status of their heritage language. It is important not to accept generalizations or guesswork. A survey, regardless of how perfunctory it might be, is an absolute necessity to those planning a Native language revitalization program.

Action	Considerations
Step 1: Establish to what extent the survey should assess the Native language. For many Native nations or language communities, it may not be feasible to conduct an extensive survey at the outset, but a complete survey should be part of the early goal attainment strategy. According to the Indigenous Language Institute's *Handbook 3: Conducting a Language Survey*, these suggestions are offered as feasible goals: Determine the status and health of the language. Find internal resources (speakers, readers, teachers and advocates). Learn the attitudes and feelings about writing the language, recording the language, ways of teaching. Learn the attitudes/needs of a certain group, such as the youth or elders. Determine how effective the present program(s) is; find out who is learning and who is losing the language. Determine the major needs of the current teachers to teach more effectively. Where the language is in an extremely fragile state with few speakers, it is important to determine the age spectrum of the remaining speakers. Who are the youngest speakers of the language and are they available or able to assist programmers?	Write down the answers to each of these questions. Based on your answers, decide on a strategy to accomplish the goals. Are there any factual references available indicating the status quo of the Native language? Were any previous surveys completed by the tribal college, government agencies, public schools or other entities? Did any of the planning assessments done by tribal, state, private or federal agencies for the community include references regarding the Native language? What is the common assessment of the status of the language given by community members? Keep in mind that non-fluent speakers often overestimate the number of speakers, since they include everyone who uses the language to any extent. What estimates are given by fluent speakers (those speaking the language as children)? Visit with those agency staff people who serve the community on a daily basis and try to determine their assessment of the number of fluent speakers in the community. Workers in the Community Health Representative Programs (CHRs) are in daily contact with many of the older people in the community and may have a good assessment of the number of speakers. Others with great insights into the health of the language include hospital, clinic and nursing home staff; public school outreach staff, court and law enforcement personnel; and social service workers. Compile and compare all assessments of the status of the tribal language. Convene people to compile an exhaustive list of fluent speakers. Based on the average age of the largest segment of fluent speakers (even it this figure is based on limited facts), estimate the remaining years the language can exist without intervention. This figure may be the best indicator of the time available for programmers to teach children the language.

Action	Considerations
Step 2: Outline the basic content and context of the survey instrument. No survey is conducive to all Native nations or language communities. It is not likely that a survey instrument can be borrowed, because it arises from a unique setting. Using another group's survey may hinder what is being sought after and the overall effort. Convene a group to serve on the survey composition team. Individuals (college students) familiar with testing and statistics, mathematics and social services are helpful to the team. <u>First and foremost, obtain a map of the area to be surveyed.</u> Whether it is determined to survey the entire Native territory where the language is spoken or only part of it, a map is an important focal tool of the planning process. <u>Develop a grid overlay for the map and indicate by number each subdivision.</u> This grid breakdown will have to reflect urban and rural aspects of the actual survey. Rural areas require greater travel time, and may require individuals familiar with the area (roads, locations, isolation factors). Urban areas present different aspects to be addressed. This exercise will determine the extent of the survey. Location and size of the language community, available funds and time elements will become obvious to the survey planners and give insight to the work ahead. Based on the extent and scope of the proposed survey, the team should discuss resources and available people needed to conduct the survey. Native studies and language departments and programs, tribal colleges and other local education institutions, community planning and related agencies should be contacted for possible coordination, support and cooperation. After a reasonable amount of time, the group should determine to what extent the survey should address the expressed goals of the team.	Given all the information compiled over a reasonable time frame, with as many informal assessments possible, what is the most reasonable assessment of the status of the Native language at present? There are many related elements of interest that can be included in a language survey without hindering its effectiveness. Inquiries about participation in Native music, dance, ceremonies and diet may shed light on what home environments are more conducive to Native languages. Obtain a large map of the proposed area that can be attached to a wall during planning sessions. The grid exercise is intended to make sure all areas of the community are included and to disperse the interview tasks in a reasonable fashion. The best survey would cover the Native language community to the best extent possible for the best assessment. A strong check-and-balance system must be put in place to assure that interviewers do not intrude on each other's areas and that re-visits can be made to those homes skipped for whatever reason during the first sweep of the area. College and university students are an excellent pool for obtaining interviewers. Most find the work conducive to their own studies and are familiar with the main aspects of survey work. If possible, individuals who can speak the Native language, or "understand" it, are important to bring into the interviewer pool also. Individuals from outside the Native nation or language community will have greater difficulty in obtaining interviews for obvious reasons. Developing the survey strategy to include funding needed, human resources, and related elements should be completed at this stage.

Action	Considerations
Step 3: Creating the survey document. Based on the decisions of the survey group, the actual document can be developed. The main considerations of the document will reflect findings on available funding, geographic considerations and types of interviews. It should not be too long or too involved. It must be anonymous, except for any numbering needed for logistical reasons (number printed, completed, etc.). Those taking the survey must feel completely at ease answering the questions and the interviewer must emphasis the "privacy" of the document. For the most part the survey form should require only: a) yes or no responses; b) check-off responses; c) numbers (how many speakers, etc.); d) short answers; and e) one open ended question. One important question to ask is who the interviewee considers the most fluent speaker(s) of the language. This might be the last question on the survey. Sample Questions: Can you speak the language? Are you a "fluent" speaker? Are you a "first" speaker? Do you understand the language, but not speak it? Are you a re-learner of the language? Do your children speak the language? Who speaks the language in your family? How many people do you know who speak the language? Can you tell Native stories in the language? Do you think you could teach the language? Do you sing Native songs with the Native language words in them? How many people do you think still speak the language in this nation or community? Where and when do you hear the language spoken? Where and when did you last hear the language spoken? Where to you go to hear the language spoken? How many times a day (week and month) do you hear the language spoken? What age are most of the people you hear speaking the language?	Some established definitions should be put in place for the benefit of conformity in the survey and for the interviewer. For example: What is considered a "fluent" speaker? What does the common answer of "understand, but do not speak" the language mean? What is a "first" speaker? There are some standard definitions for these terms, but each community should devise its own definition to suit its assessment. Keeping careful track of the completed forms is an important consideration. Once the form is completed, care should be taken to keep track of the distributed copies. Distribution to interviewers should be done with a master list, under the supervision of one individual. Only authorized copies should be made, so as not to jeopardize the sample size. Damaged or lost forms should be tracked and noted when replacing them. Careful numbering and counting of the forms should be maintained at all times. Questions on the survey must reflect what the community perceives to be the more important aspects of assessment needed to begin a language program. Statistics do not always tell the complete tale. Sheer numbers are not all that is important to know. More importantly, the group may need to know if there are enough speakers available to make a language program feasible, and who they are. Also, is there enough interest and support in the community to make the program feasible? Once the document is drafted, it should be field tested several times by editors before final editing and publication. These editors should note awkward wording, terminology, repeated or loaded questions and other obstacles to a questionnaire that reads smoothly. Once the document is completed, care must be taken to keep an accurate count of available forms.

Do you hear teenagers speaking the language? Do you hear children (under 12) speaking the language? As a non-speaker of the language do you want to learn it? How much time would you devote to learning it? Do you want your children to learn it? Where do they teach the language in this nation or community? Have you ever taken a class in the language? Have your children ever taken a class in the language? What, if any, language programs in this nation or community do you consider worthwhile? Have you ever read any materials on the language? Who are the most fluent speakers of the Native language in this community? Several related questions might also be included: Do you sing Native songs, dance Native dances and take part in or conduct Native ceremonies? Do you have books about the Native nation or community? Do you have photographs of your family ancestors? Do you utilize Native dietary items?	When the survey is completed it is important to know precisely how many forms were distributed and used. This assures a more accurate assessment of the language status.

Action	Considerations
Step 4: Conducting the survey. After the survey document has been edited, published in a pre-determined number and prepared in accordance with the grid-distribution plan, then the interviewers should be brought in to implement the survey. The interviewers must be trained in the content and context of the survey. They must be given training on how to approach the families or groups and how to elicit responses. This part of the training may require expertise from the community. Again, many Native community outreach workers may be excellent providers of this service. The Indigenous Language Institute's *Handbook 3, Conducting a Language Survey*, can be obtained from the Institute by calling (505) 820-0311 or visiting its web site at www.indigenous-language.org. The *Handbook* can greatly assist those who are developing the survey with additional insight and advice.	The interviewers must be known to the community and representative of the community. Interviewers familiar with the community and their neighborhoods should be the ones assigned to do the interviews. Each interviewer must be counseled that the survey instrument may not be altered and responses may not be misrepresented or changed. The interview teams should be given training on conducting face-to-face interviews. House-to-house use of the grid is the more comprehensive method of assessment. It allows for a better method of calculating if the overall community has been assessed. The numbers could be altered by inclusion of community centers, government offices or other public places. Any such inclusion should be carefully monitored by the lead survey team, in order to avoid altering the numbers. This is a decision to be made by the survey team. A definite timeframe must be established, with set beginning and ending dates. The grid must be adequately covered in some mathematical equation. For example, at least one out of every four homes must be visited. This equation should become obvious during planning. It is not necessarily important to visit every home, but it is important to establish a sample survey group representative of the grid sub-division. The ideal interview team would consist of two individuals, along with a language speaker, but one interviewer will suffice in most cases. It is most important to select an interviewer who is comfortable with and trusted by the community. Once all the questionnaires are completed, a careful tally should be taken. Damaged or incomplete forms should be noted. Completed forms should be carefully noted and tallied. Many software programs can break down the raw data collected and put into graphics. Professional survey groups can be utilized when funds are available. Graphics can clearly show where the language is spoken, the degree to which the language is spoken in the home and related information needed as a foundation for a language program. The most important information will be the list of names of speakers generated from the survey.
Step 5. Utilizing the survey results. The completed report should be widely disbursed in the community. It also becomes an important tool in grant writing and fund raising in the future.	

DISASTER PREPAREDNESS

Disaster preparedness is a very important part of archival training. There is no such thing as a perfect archive and there will be times when the staff will be faced with emergencies such as flooding, leaking roofs, fire, pest infestation, and also more extreme situations such as tornadoes, earthquakes, hurricanes, and even the threat of terrorism and bombings. The first part of this section is taken from the Smithsonian Institution Archives *Disaster Planning, Prevention and Recovery Manual*.[2] The second part on water damaged materials is taken from the National Archives and Records Administration online manual.

The first stage of preparation involves knowing and analyzing the potential threats (see also Appendix E). The next stage would be to develop a plan to deal with them.

Following are some of the most common hazards and disasters:

Environmental Hazards

Blizzard or heavy snow fall
Severe heat wave, cold snap
Severe thunderstorm
Lightning strike
Sleet, hail, and ice
Wind storm, tornado, cyclone
Flooding, flash and slow-rising
Earthquake
Dust storm or prolonged drought

Transportation hazards

Collisions or crashes involving:
aircraft, trains, or motor vehicles
(automobiles, pollution trucks)
Transport of chemicals, fuels
or nuclear materials

Human Activity

Accidents by individuals
Armed robbery
Arson and incendiary fire
Bombing
Bomb threat
Conventional warfare
Nuclear warfare and fallout
Riot, civil disorder, and strike
Terrorist attack
Sabotage and malicious mischief
Vandalism
Careless smoking

Infrastructure Breakdowns

Electrical power failure
Downed power or phone lines
Faulty wiring
Fuel supply failure
Water supply failure
Broken water or sewer lines
Sewer failure or backup
Improper storage
Faulty heating systems (furnace)

Industrial Disasters

Explosion
Extreme or prolonged air
Fuel spill (major)
Chemical spill
Radiological contamination
Structural collapse
Structural fire
Nuclear power plant failure

Biological Hazards

Insects
Rodents
Birds
Mold and mildew

Protecting Vital Records

A serious effort has to be made to prevent the irretrievable destruction of documents and records that are essential to the continued operation of the archives.

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The usual methods of protecting vital records such as a catalogue, shelf list, or accession list are as follows:

- duplication, e.g., microform copy of accession records, computerized data back-up
- off-site storage

One of the most important preparations to be made in the event of a disaster is the establishment of a written list of collection priorities which would determine what should be removed or treated first. This list would:

- assure the recovery of the most important or valuable items;
- help to effectively allocate time and energy where it is most needed during a crisis; and
- serve as a guide for the salvage operations teams in their work.

General Guidelines to Determine Priorities

- Materials that are rare or unique; not available elsewhere (as an original or as a replica); or essential to the integrity and purpose of a collection require a high restoration priority.

- Items or artifacts that possess recognized aesthetic, historical, scholarly, or monetary value require a high restoration priority.

- Items (e.g., photographs) that are susceptible to rapid deterioration would require immediate attention. Shelf-lists, catalogues, accession lists and other collection records as well as circulation and patron files should be given high priority.

- Items that are replaceable: a) in an identical format; b) in another media; c) with different but equivalent material; or, d) with a more current version will receive a low preservation priority.

Staff Training

A Disaster Contingency Manual (see Appendices F & I) should be prepared and the staff should read the entire manual at least once. The staff should also know everyone's job description in case they are assigned a different job, so that all vital roles are filled. The staff should read the sections on salvage operations and treatments so this information is familiar should they have to apply what they've read at the time of the disaster.

Conducting in-house staff "disaster contingency" training sessions is part of a disaster contingency plan.

Whenever there is a staff change, new staff members should be given a training session to familiarize them with the disaster contingency plan and its components, and, if possible, to teach them salvage operation/treatment basics. It is the responsibility of the Safety Officer or Evacuation Coordinator to provide or facilitate this training.

Also, before departing staff members leave the archives, the Safety Officer must ask them for and see returned all copies (home and office copy) of the disaster contingency manual.

Preventative Monitoring Schedules

The following is a description of the different types of monitoring systems that are proposed for set up in response to past problems or in the hope of preventing future emergencies through early detection.

1. Water Checks (monthly)

A regularly scheduled monthly check by the Recovery Coordinator or alternative should be instituted to monitor potential trouble spots.

> The inspector will survey the entire archives, including all stacks (walking to the end of each), the receiving room, the reading room, the staff room, the bathrooms, and all of the offices. It is important to check under map cabinets, under cupboards, and under tables in the receiving room and stack areas. (Flashlights might be useful during the inspection; these should be located at the ends of the stacks and in the supply room.)
>
> The inspector should watch for: water on the floor; water on the ceiling; water on the walls; dried water stains on the floor; wet or dry water stains on the ceiling; water dripping from light fixtures; anything else that looks unusual or suspicious.
>
> If anything unusual is found during the inspection, a brief report should be written up. The inspector should review previous reports to identify old stains, etc. In this way, new stains can be readily identified and reported.

2. Insect Checks (routine)

> Pest infestation is a special concern in some parts of the country. Below is an example from an excerpt of a statement by Ben Nighthorse Campbell about the Bureau of Indian Affairs record-keeping procedures:
>
> > Trust fund documents were mixed in with all the other documents kept by the field offices, with no organization and no attention paid to the conditions. These are essentially bank records, water damaged, kept in trashbags, disintegrating boxes, next to paint cans, mop buckets and road signs. . . . Last year the Interior Department claimed they could not comply with a court order to produce some documents because they were covered in mouse droppings and there was a concern about hanta virus[3] infestation.[4]
>
> All staff should be on the look out for insect infestations. If a staff member notes a particularly significant infestation, he or she should report this situation to the proper persons.

3. Disaster Plan Updates (annual) and Annual Staff Review

> The Disaster Contingency Plan should be updated on an annual basis and all staff members should review the updated version..

4. Off-site Backups (monthly)

> It should be a high priority to assure that back-up copies of computer information are stored off-site.

5. Disaster Prevention/Safety and Security Checklists (semi-annually)

There should be a semi-annual run-through of the Disaster Prevention/Safety and Security checklists (see Appendices F & H). The purpose of reviewing these checklists is to remember the preventative measures that can be taken to avoid disasters, and to ensure that a safe, secure work place is maintained.

PROCEDURES FOR SALVAGE OF WATER DAMAGED MATERIALS[5]

In the event of major water-damage problems, a well-organized plan can greatly reduce the costs of salvage and restoration as well as the proportion of outright losses. Assistance and advice should be sought as soon as possible after a disastrous event has occurred, from a qualified library or archive specialist who has proven experience in the reclamation of fire and water-damaged collections.

Library and archive staffs are now generally better informed about the mechanisms of drying cellulosic materials as well as some of the technologies developed for this purpose. The use of vacuum chambers for drying large quantities of books and paper records has become an acceptable, almost common approach, but not without some confusion as to the differences and relative merits of vacuum drying and vacuum freeze-drying. Both methods effectively remove water but by quite different mechanisms and often with quite different results. An understanding of how these technologies function is essential in planning for a recovery operation, in order to make the best possible match between the nature, condition and needs of the materials and the capabilities of a particular drying system.

The use of fungicides to control the spread of mold growth has become an increasingly controversial subject because they may cause severe danger to workers and in some cases to the materials treated. Sterilizing by means of ethylene oxide (ETO) and related chemicals has come under close scrutiny by the EPA, to the extent that its use cannot be recommended, except by a commercial business firm which is fully insured and licensed to perform this service. Treatments involving the use of ethylene oxide are best carried out under controlled conditions, as in vacuum chambers at the end of a drying cycle, and they must be guaranteed to leave no residual toxicity in the material. ETO remains the most effective treatment for severe mold attack resulting from major disasters, especially those exposed to river water.

The critical decisions to be made following water damage require knowledge of available drying technologies and their effects on a variety of composite materials. Ideally, materials removed from site, should be prepared and packed in a manner most suitable for the drying method to be used. Unfortunately, what tends to happen, particularly when no emergency plan exists, is that wet material is packed and shipped off to freezing facilities without any knowledge of how the material will be dried. This may result in the material having to be repacked before drying which adds considerably to the cost of drying and the potential for further damage.

The complete restoration of water-soaked documents, particularly bound items, can be a costly process even under the most favorable conditions. In the majority of cases, the high costs involved do not justify the salvage and restoration of books which are in print and can be replaced. However, decisions relating to these factors are virtually impossible to make during a salvage operation and even when a disaster plan exists. On the other hand, it might be unwise not to attempt to salvage everything, if an insurance assessment is required and a claim is to be made.

Freezing, followed by vacuum freeze drying has been shown to be one of the most effective methods for removing water from large numbers of books and other paper records, but drying is not the final step in the reclamation process. In some cases, volumes which are only damp or which have suffered minor physical damage before freezing may come from a drying chamber in such good condition that they can be returned to the shelves. It is preferable that, where possible, the packing on site should be carried out in such a manner as to segregate very wet material from that which is partially wet or material which is merely damp from exposure to high humidity conditions This will not only result in cost savings during the drying operation but will help to avoid over drying of the least wet material. In the majority of instances, drying must be followed by restoration and rebinding, and therefore the technique and success of the drying method chosen will directly affect the final cost of restoration. This can be very expensive.

Thus, librarians and others faced with decisions which follow water damage from serious flooding, from the aftermath of a fire, or related water damage exposure, need to be reminded that replacement is nearly always much less costly than salvage and restoration. The necessity for making sound, on-the-spot, cost-effective judgments is the best reason for being prepared in advance by developing a pre-disaster preparedness plan. There are a number of such plans that have been drawn up, which can be found in the literature, to serve as models.

How Water Affects Books and Unbound Materials

Paper absorbs water at different rates depending on the age, condition, and composition of the material. Thus, some understanding of the mechanism of swelling action, as well as the development of mold, is essential to planning a successful salvage operation. In addition, when large collections are at stake, it is useful to be able to calculate in advance the approximate amount of water which will have to be extracted in a drying process. This will provide helpful data when selecting an appropriate drying method. Of equal importance is some knowledge of the length of time each type of material can be submerged in water before serious deterioration occurs.

Estimating Water Absorption

Generally speaking, manuscripts and books dated earlier than 1840 will absorb water to an average of 80 percent of their original weight. Some may absorb as much as 200% of their original weight. Since there is a greater concentration of proteinaceous material and receptivity to water in such early books and papers, they are especially vulnerable to mold when damp. Modern books, other than those with the most brittle paper, will absorb an average of up to 60% of their original weight. Thus, in estimating the original weight of a collection, if one assumes an average of four pounds per book when dry for 20,000 books in each category, drying techniques must be capable of removing approximately 64,000 pounds of water from the earlier materials and 48,000 pounds from the latter.

The major part of all damage to bound volumes caused by swelling from the effects of water will take place within the first four hours or so after they have been immersed. Since the paper in the text block[6] and the cardboard cores of book bindings have a greater capacity for swelling than the covering materials used for the bindings, the text-block of a soaked book usually expands so much that the spine assumes a concave shape and the fore-edge a convex shape, thus forcing the text block to become partially or completely detached from its binding. The board cores of bindings absorb a great amount of water in such circumstances and are usually the source of mold development between the board papers and fly leaves. This is especially apparent when the area in which water damage has occurred begins to dry out and the relative humidity falls below 70%. Although it is obviously important to remove as much moisture as possible from the environment, it is essential that the water content of the material be monitored because this will remain dangerously high, long after the area is apparently safe. Action taken to salvage the material should therefore be governed by the water content of the material and not by the relative humidity of the area. A water moisture meter, such as an Aqua Boy can be used to measure the water content inside books and box files. If such an instrument is unavailable a crude but quite effective way is to use a mirror within but not touching the text block. Condensation will cloud the mirror. A water content measuring less that 7% is considered dry.

Leather and vellum books, especially those of the 15th, 16th, and 17th centuries, can usually be restored successfully if they are dried under very carefully controlled procedures. Such materials are usually classified as rare and should be treated accordingly by not mixing them with less rare materials during preparations for salvage, stabilization and drying. The advice of a certified book conservator may be essential in order to safely carry out the most appropriate methods. If the material is frozen, freezer paper should be used between each volume to prevent sticking. (Refer to the section on freeze-drying for the special requirements needed for drying this type of material).

Unfortunately, modern manufacturing processes so degrade the natural structure of leather that once water soaked, book covers are often impossible to restore. Some leather bindings will be reduced to a brown sludge, while others will shrink severely. Swelling of covering materials, such as cloth, buckram, and certain plastics is negligible, however, in some cases shrinkage occurs. Book covers, however, which are made of a highly absorbent cardboard, will absorb water to a greater degree than an equivalent thickness of text block. Some book covering materials which have already deteriorated will absorb water at about the same rate as the text block.

Once access to the collection is gained, the external appearance of each volume and group of volumes is a useful indication of the degree of water damage. Those volumes found, usually in heaps, in the aisles will naturally be the most damaged. Not only will they have sustained the shock of falling, as rapid swelling caused them to burst from the shelves, but they will also have been exposed to water for a longer period than the volumes on the shelves above them. These will need special, flat packing and the most extensive restoration. The appearance of such volumes can be a devastating, emotional experience, but one must not panic since every volume worth the cost of salvage and restoration can be saved.

Above the floor levels there will be distinct signs among the shelves of the locations of the wettest material. Shelves which have expanded under the pressure of swollen paper and bindings will usually contain a mixture of evenly wet as well as unevenly wet material. The proportion of evenly wet material in these situations is usually less than those that are unevenly wet. This is because books, originally shelved closely packed together, will not easily be completely saturated especially if the paper is slow to absorb. This is the major reason why so many books become misshapen and distorted after water damage and also after they have been frozen and dried. If paper is unevenly wet, it will not dry without distortion. Misshapen volumes with concave spines and convex fore-edges can be immediately identified as belonging to the category of very wet. Others that have severely swollen text blocks but that still retain some spine and fore-edge shape may indicate that they were previously bound with library binding oversewing[7] techniques and may have sustained irreversible sewing structure damage. Others may be relatively sound in shape and these stand the best chance of drying with the minimum of distortion.

Coated Papers

Coated papers are the most vulnerable to complete loss and should not be permitted to begin drying until each volume can be dealt with under carefully controlled conditions. The period between removal and freezing is critical. It may be necessary to re-wet them with clean cold water until they can be frozen. During the aftermath of the Corning Museum Library river flood of 1972, it was found that the highest percentage of water damaged books were printed on coated stock papers and that when they were frozen in the wet state most were dried successfully by freeze-drying.

Archival Box Files

Archival box files often fare better than book material because their boxes are made of porous board stock which can be expected to absorb most of the water, protecting the contents inside. This would not be the case, of course, if they were completely immersed under water for many hours. During recovery, the contents of each box should be carefully inspected and the box replaced if it is water saturated. Failure to do so will increase the risk of physical damage as boxes collapse from pressure during recovery, shipment, and cold storage.

Access

Where water damage has resulted from fire-fighting measures, cooperation with the fire marshal, and health and safety officials is vital for a realistic appraisal of the feasibility of a safe salvage effort. Fire

officers and safety personnel will decide when a damaged building is safe to enter. In some cases, areas involved in a fire may require a week or longer before they are cool and safe enough to enter. Other areas may be under investigation when arson is suspected. There may be parts of a collection that can be identified early in the salvage planning effort as being especially vulnerable to destruction unless they receive attention within a few hours after the fire has abated. If the fire marshal appreciates such needs, he may be able to provide means of special access to these areas even when other parts of the building remain hazardous.

Perhaps the most important and difficult decision to make after an assessment of damage has been made, is whether to remove the wettest materials first or to concentrate on those that are only partially wet or damp. If the majority is in the latter category, the best course may be to recover these first since they may develop mold if they are left in dank and humid conditions while the wettest material is removed. A balance must be struck between the reduction of moisture content in the affected areas and the time involved for the safe removal of the majority of the collections in the best condition. To remove the wettest material first will obviously lower the moisture content, but it is often the case that this can be difficult and time consuming because shelves become jammed with swollen wet books and boxes and may require special equipment to free them. The aim is always to recover the majority of the collection in the best condition to avoid additional harm and costs brought about by post-disaster environmental damage.

Once all entrances and aisles have been cleared, in addition to the above considerations, the most important collections, including rare materials and those of permanent research value, should be given priority unless other material would be more severely damaged by prolonged exposure to water. Examples of the latter are books printed on paper of types widely produced between 1880 and 1946, now brittle or semi-brittle. However, materials in this category which can be replaced should be left until last.

Stabilizing the Environment

Salvage operations must be planned so that the environment of water damaged areas can be stabilized and controlled both before and during the removal of the materials. In warm, humid weather, mold growth may be expected to appear in a water-damaged area within 48 hours. In any weather, mold can be expected to appear within 48 hours in poorly ventilated areas made warm and humid by recent fire in adjacent parts of the building. For this reason, every effort should be made to reduce high humidities and temperatures and vent the areas as soon as the water has receded or been pumped out. Water-soaked materials must be kept as cool as possible by every means available and be provided with good air circulation until they can be stabilized. To leave such materials more than 48 hours in temperatures above 70 degrees Fahrenheit and a relative humidity above 60 percent without good air circulation will almost certainly result in heavy mold growth and lead to high recovery and restoration costs.

Damaged most by these conditions are volumes printed on coated stock and such highly proteinaceous materials as leather and vellum bindings. Starch-impregnated cloths, glues, adhesives, and starch pastes are affected to a somewhat lesser degree. As long as books are tightly shelved, mold may develop only on the outer edges of the bindings. Thus no attempt should be made, in these conditions, to separate books and fan them open.

As a general rule, damp books located in warm and humid areas without ventilation will be subject to rapid mold growth. As they begin to dry, both the bindings and the edges of books will be quickly attacked by mold. Archival files which have not been disturbed will not be attacked so quickly by mold. A different problem exists for damp books printed on coated stock, since if they are allowed to begin to dry out in this condition, the leaves will quickly become permanently fused together.

Assessment of Damage and Planning for Salvage

Weather is often the critical factor in determining what course of action to take after any flood or fire in which archive and library materials are damaged. When it is hot and humid, salvage must be initiated with a minimum of delay to prevent or control the growth of mold. When the weather is cold, more time may be taken to plan salvage operations and experiment with various reclamation procedures.

The first step is to establish the nature and degree of damage. Once an assessment of the damage has been made, firm plans and priorities for salvage can be drawn up. These plans should include a determination of the special facilities, equipment and personnel required. Overcautious, unrealistic, or inadequate appraisals of damage can result in the loss of valuable materials as well as confusion during all phases of the recovery operation. Speed is of the utmost importance, but not at the expense of careful planning which must be aimed at carrying out the most appropriate, safe and efficient salvage procedure within the circumstances prevailing. An efficient record keeping system is a must. Inventory of call numbers, shelf location and packing box numbers will help make the task of receiving collections returned after drying so that their original shelf locations can be identified, as efficient as possible.

Maintaining a detailed photographic and written record of all stages in the recovery operation is an essential, but often overlooked task which will aid the process of insurance claims and demonstrate the condition of the material before it is frozen and dried. Some have found that on receiving materials back from a drying process, they are shocked by the appearance of distorted material, believing perhaps that the condition should be much better, or be somewhat restored! The photographic record can be a very helpful reminder that distortion is mostly the result of the initial water damage and not necessarily the result of the drying process. The photographic record should provide key evidence for the reasons and nature of additional damage resulting from any part of the recovery process.

The Recovery Team

Conducting a successful and efficient recovery operation after a major flood or similar disaster requires, in addition to a good supply of dedicated labor, a team of experts who should be assembled before practical work begins.

The leader should be a person who has had practical experience and understands the effects of different environmental conditions on water-soaked materials of all types, conditions, and ages. The team leader should to be assisted by custodians who know the collection intimately; conservators who can provide additional advice and guidance as well as help in training workers in safe removal procedures; procurement specialists; building maintenance engineers; electricians; carpenters; plumbers; a chemist if available, and health and safety experts.

One or more persons familiar with national and local resources are highly desirable to assist in locating and procuring the special facilities, equipment and supplies needed during the operation. They should be familiar with using the Yellow Pages to track down materials and equipment, able to seek out the key chemical supply companies in the country, if necessary, and generally have the authority to cut through administrative red tape.

The assembled team should be carefully briefed on the recovery plan and procedures to be followed as well as various contingency alternatives which might have to be adopted, priorities to be observed, and their own specific responsibilities.

Team leaders need to be identified and instructed in the details of the recovery plan and its main aims and goals. They in turn should brief all workers so that they too will understand the purpose of the plan and what is expected of each of them. A well briefed and dedicated team works much better than enthusiastic individuals who are allowed to carry out actions which may be disruptive to the main purpose of the team plan.

The major objectives of this team should be:

- To stabilize the condition of the materials before removal by creating the environment necessary to prevent further damage.

- To recover the maximum number of material from the damaged collections in a manner which will minimize future restoration and its costs.

- Primary Considerations for Recovery of Water-Damaged Collections.

- Seek the advice of specialists who can assist at the site of the disaster.

- Organize a disaster team and prepare a comprehensive plan of action, as well as plans for different contingencies.

- Do not attempt to remove materials from the area until an overall plan with a schedule of priorities has been established and all personnel thoroughly briefed and trained.
- In winter, turn off all heat in the building. In summer, reduce temperatures as much as possible through air-conditioning.

- Create maximum air flow through all affected areas by opening doors and windows. If electrical facilities are operational, use as many fans as can be acquired to create a current of air so directed as to expel humid air from the building. Use de-humidifiers together with air conditioning and a good air flow. The objective is to avoid pockets of stagnant air and to reduce moisture content.

- If house electricity is not available, hire portable generators to provide electricity for lights, fan, dehumidifiers, and other electrical services. For safety purposes, all electrical lines should be waterproofed and grounded and be administered by health and safety personnel.

- Do not permit anyone to open wet books; to separate single sheets; to remove covers when materials are water-soaked; or to disturb wet file boxes, prints, drawings, and photographs. Such handling can result in extensive and often irreparable damage to materials that otherwise might be salvaged. Reducing the cost of future restoration must be one of the top priorities of the salvage operation.

- Canvass the community to locate freezing and storage space.

- Locate sources of one cubic foot milk crates and corrugated board boxes.

Preliminary Steps in the Evacuation from Water-Damaged Areas

If the materials are to be frozen, prior arrangements should have been made to ship the packed materials immediately to freezing facilities. Packed materials must not be allowed to remain on or near the site for more than a few hours, since such delay will further increase the possibility of mold development. Before actual removal of the water-soaked material begins, lighting, fans, dehumidifiers, and all possible venting should be fully operational. All work surfaces should be covered with polyethylene sheeting. Areas selected for packing or drying should be prepared for the operation by emptying them of all unnecessary equipment and furniture.

Removal and Packing of Water-Damaged Materials–The Work Force

Safety of the materials and future restoration costs will depend largely on the competence and dedication of the salvage crews. The work will be arduous, dirty, and often frustrating. Team leaders should not hesitate to dismiss careless and thoughtless workers. Experience has shown that well-disciplined crews

having brief rest periods with refreshments about every hour and a half are the most efficient. Working salvage crews to exhaustion pays no dividends.

Removal from Water-Damaged Area–The Catalog and Other Records of the Collection

High priority should be given to salvaging the catalog and other records of the collection. Salvage operations should avoid any action that might remove or deface identifying marks and labels.

During the pre-recovery planning stage a decision needs to be made on whether or not to use a location number identification system which could be used after the material is returned from the drying operation to reassemble the collection in similar shelf order. There will be a need to identify and segregate materials which are very wet from partially wet; mold contaminated from uncontaminated; rare and sensitive items from the less rare and sensitive etc. If an orderly, efficient and safe recovery is to be achieved, together with a control over the choice of drying and other special measures needed to save rare and sensitive materials, a box coding system is indispensable.

At least one person should be assigned specific responsibility for making an inventory at each location where the materials are taken from the shelves and boxed. This person might also be given charge of supervising the boxing and box coding process.

Conveyor belts and human chains are normally used to remove large numbers of material from each shelf, pack them in corrugated boxes or plastic milk crates and to move them to the loading site for shipment to cold storage facilities. It is at this time that a great deal of additional damage and confusion can occur. The number of people involved in this operation and their behavior needs to be closely supervised. Try to initiate a rhythm when using human chains that keeps everyone busy without being over taxed. Too many helpers will hamper progress, encourage loafing and generally reduce the efficiency of the operation. It is highly desirable to instruct the team daily on the tasks to be carried out and to keep them informed as to the major objectives of the recovery operation and as to any changes that have been made to the master plan.

An efficient and dedicated work force needs to be provided with all the accoutrements of human survival, such as regular rest periods, a place to eat, a convenience to wash and clean up, and immediate access to medical attention.

Manuscripts and other materials in single sheets create particularly difficult problems if they have been scattered. An indication of the approximate location in which they are found during the salvage operation may be extremely helpful at a later date. Materials should never be moved from the site in large batches or left piled on top of each other, either at the site or in adjacent temporary housing, since the excessive weight of water-affected books and paper records can lead to severe physical damage.

When flood-damaged books were removed from the Biblioteca Nazionale in Florence following the river flood disaster of 1966, substantial numbers were piled high outside the library building while awaiting shipment to drying facilities. This action caused significant damage to the books from the weight of water saturated volumes and led to very high costs of post disaster restoration.

Removal and Packing

The aisles between stacks and main passageways will probably be strewn with sodden materials. These must be removed first, separately, by human chain, in the exact condition in which they are found. Open books will be greatly swollen, but no attempt should be made to close them. Closing them will cause further damage by tearing the leaves, since paper will not slide when wet. Instead, books should be passed undisturbed to an adjacent dry area where an awaiting team may pack them without disturbing their shape. This particular type of material must not be packed tightly but should be packed flat in boxes and separated with at least one layer of freezer paper and one sheet of 1/2" polystyrene between each open book.

The packing team should have approximately the same number of people as the team which passes the damaged material to them. This will avoid bottlenecks and stacking materials on the floor awaiting packing. If a sufficient number of people and conveyor belts are available, the most efficient place to pack damaged materials will be on site. Teams will have to be organized to assemble packing materials and supply them to the packers in a smooth flow. Use of a second human chain or conveyor will reduce bottlenecks and the likelihood of incoming supplies interfering with the flow of packed materials being passed out of the building. After the isles have been completely cleared, the main work of recovery can begin. Hopefully, a decision will have been made as to which material to remove first: the wettest or the ones in the best condition. As stated earlier, if the majority is only damp and in relatively sound condition, these could be removed first and more rapidly than other materials. In these circumstances de-shelving and packing will be a relative quick operation and will help to establish a smooth worker flow. As each line of shelves is emptied, an assistant should code each box and record the box number and its general contents in a notebook. The contents of archival storage boxes are unlikely to be saturated with water if they were previously positioned close together. However, since certain types of boxes have a corrugated inside layer, they may be very wet, even though the major portion of the contents is only damp. In such cases, it is best to repack the contents in new boxes or in plastic milk crates. This will not only make each unit lighter to lift and prevent the collapse of a wet box but will also speed the drying process. When repacking it is important that the new boxes be properly identified.

Disposition of Remaining Materials and Cleaning of Water-Exposed Areas

If the wettest materials were removed first, the drier material will usually be above the first four or five shelves and packed closely together. On no account should this third category be separated or spaced out during the earlier salvage efforts. Closely packed materials will not readily develop mold internally.

However, since these will have been in a very humid atmosphere for, maybe several days, it is likely that some mold will have developed on the outer edges of bindings and boxes. This is less like to occur if, during the evacuation of the wettest materials every effort had been made to reduce temperatures and humidity levels and establish a good air flow.

There may be books and box files in such good condition that they need not be sent to freezing facilities but can be dried in ambient conditions. On no account however should the drying be attempted in the location in which they were found because the environment will be totally unsuitable. They should instead be removed to a controlled environment while shelves, wall, floors, and ceilings are sterilized and necessary maintenance work is being done to return the site to its normal condition. If moved, materials should be stacked with air spaces between them provided that the drying area has a good circulation of air, together with airconditioning and dehumidification. If airconditioning is not available, fans and dehumidifiers should be used to keep air moving and to extract moisture from the area. The relative humidity of a drying area is no guide to the actual moisture content of cellulose materials. The normal water content of paper is between 5 and 7 percent by weight. Materials which feel relatively dry to the touch as they come out of a humid, flood-damaged area, may actually contain moisture from above 10 to 20 percent.

Heat is one of the best means of drying, but since it increases the risk of mold development on humid books and documents, it should be used only if a good circulation of air and dehumidification can be established. Hygrothermographs for recording temperature and relative humidity should be installed to monitor the general area, and moisture-content meters used to measure the moisture in the materials themselves.

Cleaning After a River Flood

The safest time to clean materials is after they have been dried. If water-damage is the result of a river flood then the following might, under certain circumstances, be considered. The Florence experience demonstrated that the best time to remove mud was after the books were dry. However some books did benefit from partial cleaning in the wet state.

If adequate assistance is available, mud deposits on books which will not be further damaged by water may be washed off in clean, running water. Closed books may be held, one at a time, under water and the excess mud removed with a hose connected to a fine spray head. Similar washing should not be attempted with opened volumes, manuscripts, art on paper, or photographs.

Rubbing and brushing should be avoided, and no effort be made to remove oil stains. Anything which is hard to remove is better left until after drying, when techniques for removal can be worked out during the restoration stage. In some cases, printed books bound in cloth or paper can be left immersed in clean running water for as long as two weeks. Although this should be avoided if possible, it is preferable when the only alternative is leaving such books in warm, humid air while awaiting attention.

Thorough Washing to Remove Heavy Deposits of Mud

A more thorough washing procedure, intended to remove as much mud and slime as possible from books, requires six to eight tanks big enough to accommodate the largest volumes in the collection. This process is obviously wet and messy and needs to be set up outdoors in fair weather or in an area fitted out to use and remove large quantities of water. Since large quantities of water are required, the area will be wet and dirty throughout the operation, and good drainage is therefore essential.

Any rustproof receptacles may be used if they are large enough, but plastic garbage cans (20 or 30 gallons) are recommended. Each can should be equipped with a hose to provide low-pressure, continuous water flow to the bottom so that dirty water, as it overflows the rim, will be constantly replaced by fresh. Each hose should be fastened securely to prevent damage to the books being washed. Wooden duck-boards, rubber boots, gloves and aprons are recommended for the protection of workers.

Keeping a book tightly closed, a worker should immerse one book at a time in the first can and remove as much mud as possible by gentle agitation under the water. Workers should not use brushes and or any tool which would cause an aggressive rubbing action. Books should be passed from one can to the next and the same operations repeated until most of the mud has been removed. At the last can, books should be rinsed by spraying them gently with a fine stream of water. No effort should be made to remove mud which continues to cling after sponging under water. This is much better done when the books are dry.

Finally, excess water can be squeezed from books with hands pressure; mechanical presses should never be used. It must be emphasized that the above procedure should be attempted only by a carefully instructed team and in a properly fitted-out area. If there is any doubt about the ability of the team to follow directions, washing should not be attempted. There are many classes of books which should not be washed under any circumstances, and it is therefore imperative to have the advice of an experienced book conservator who can recognize such materials and who understands their treatment requirements.

Principles of Stabilization by Freezing

The most generally accepted method of stabilizing water-damaged library and archival materials before they are dried is by freezing and storing at low temperatures. This buys time in which to plan and organize the steps needed to dry the material and to prepare a rehabilitation site and the building for return of the collections after drying. Freezing provides the means for storing water damaged materials safely and for an indefinite period of time in similar physical condition in which they were found, preventing further deterioration by water and mold while awaiting treatment.

Freezing is not a drying method, nor can it be expected to kill mold spores, but it is highly effective in controlling mold growth by inducing a dormant state in the spores. If mold damaged material is frozen it is important that the drying method chosen prevent mold spore activity during the drying process. For this reason it is important to segregate such material during removal and packing operations.

Stabilization by freezing also provides important advantages when it is not possible to immediately assess the value of the damaged materials or to determine which items can or cannot be replaced. In

other words, stabilization gives time in which to estimate recovery costs, to prepare adequate environmental storage conditions, and to restore the building. In some cases, it may be necessary to restore or rebuild the original facilities--a process which can require a long period of time.

Had freezing technique been used after the catastrophic Florence flood in 1966, thousands of additional volumes could have been saved completely or would have suffered significantly less damage. The Florentine libraries which sustained the greatest losses contained mostly 19th and 20th-century materials. In these collections, losses were heaviest among books printed on coated stock, whose leaves stuck together during drying and could not be separated afterward. These losses could have been largely prevented if the materials had been frozen while wet, and if drying methods now known had been used to prevent adhesion of the leaves.

The effect of freezing upon water soaked volumes which have lost their shape or have had their binding structures damaged by immersion, will be to slightly increase the thickness of volumes by the physical action of ice crystals, but this additional increase in thickness has been found to contribute no significant problems to already damaged books. Studies conducted by the Research and Testing Office of the Library of Congress have uncovered no evidence of any damage to cellulosic[8] and proteinaceous materials caused solely by the action of freezing.

Freezing as a salvage method has other advantages. It can stabilize water-soluble materials such as inks, dyes, and water stains etc. which would otherwise spread by wicking action if they were dried from the wet state by conventional drying methods. Freezing provides the means by which water-soluble compounds will remain stable during a freeze-drying process which involves the removal of water by sublimation. This is the only known drying method capable of drying without further spreading of water soluble compounds, provided that the frozen state of the material is maintained before and throughout the drying process.

Cold Temperature Storage Conditions

The size and formation of ice crystals is governed by the rate and temperature of freezing. Blast freezing used for certain types of food-stuffs is designed to quickly freeze in a few hours, often involving temperatures in excess of -50 degrees Celsius. The advantage of quick freezing is that ice crystals are kept very small, resulting in a limited amount of swelling. Availability of blast freezing facilities may not be possible following water damage, so in normal circumstances, freezing will be slower and therefore the formation of ice crystals larger, but this should not cause problems for the majority of library and archive collections.

Once frozen, cold temperature conditions should be maintained at about 0° Fahrenheit (-18° Celsius). Lower temperatures will do no harm but higher temperatures may increase the size of ice crystals.

Preparation for Freezing

Before freezing, it may seem tempting to wash away accumulated debris particularly if this is the result of a river flood, but this is rarely advisable or safe because of lack of time, skilled workers and a pure water supply, and the quantity of material to be handled. (Aqueous washing to remove smoke damage should never be attempted under any circumstances.)

Washing should never be attempted by untrained persons as this will cause further damage, nor should time be taken for this purpose if so little skilled help is available that any significant delay in freezing the bulk of the materials would result. The washing of materials containing water-soluble components, such as inks, watercolors, tempera or dyes should not be attempted under any circumstances.

Experience has shown that such materials, as well as those that are fragile or delicate, can be seriously or irreparably damaged by untrained workers attempting to clean and restore on-site. Such materials need expert attention and hours of careful work if damage is to be kept to a minimum. The period of emergency action and first aid is a dangerous and unsuitable time for the careful work required to restore

materials to near-original state. The general condition of the damaged material will determine how much time can be spent in preparation for freezing. At the very least, bound volumes should be wrapped with a single fold of freezer paper, or silicone paper, if it is likely that their covers will stick together during the freezing process.

All rare, intrinsically valuable and delicate material should be prepared for freezing separately from other materials and also in separate categories so that each can be located and identified before they are dried. Each category may require a different type of drying than used for the other, less sensitive materials. For instance, early printed books and manuscripts are made up of a variety of material including vellum, leather, paper, wood metal, ivory, inks and water color media. Others will be delicate and or highly water sensitive. These will need to be dried very carefully, and if freeze-drying is used it should be undertaken with the minimum amount of internal chamber heating. If only a few items are involved it may be preferable to send them directly to a certified conservator for immediate treatment.

Containers and Methods of Packing for Freezing

The choice of packing containers should be carefully considered. Although corrugated board boxes are cheaper to purchase, locate and store on site than plastic type milk crates, they may restrict the rate and efficiency of drying and also be prone to collapse when filled with wet material. If it is possible to decide in advance what method of drying is to be used, be guided by the technical requirements of the vendor's drying system. For instance, if freeze-drying is to be used, one cubic foot plastic milk crates might be preferred, since these provide open spaces within the interlocking crates to aid in the efficient out-gassing of ice by sublimation.

With some forms of vacuum drying where sublimation does not occur, corrugated boxes may be quite suitable, depending on the location of the heat source in the chamber. In either case, containers should not be larger than approximately one cubic foot, to avoid excessive weight, a vital consideration for workers removing material from site and also to help reduce damage from collapsing boxes. Usually boxes will be prepared for freezing on pallets and this is where the weight of heavy wet boxes can then to collapse and cause additional damage to material within the pile. To avoid this, use plastic milk crates or very sturdy corrugated boxes for the wettest material and re-box file records if their original boxes are saturated with water. Endeavor to use one size and type of box. If this not possible, do not mix sizes when packing on pallets. The number of boxes per pallet should be no more than can be supported without collapse.

Although faster freezing and drying will result if boxes are not packed tightly, the contents will distort during the drying operation. To achieve the best drying results for books, they should be packed closely together so that drying is done under some restraining pressure. A book should never be packed foredge down as the weight of the text block will cause an inversion of its natural round shape. Pack books spine-down or flat and avoid placing larger volumes on top of smaller ones to avoid sagging which will be costly to correct during restoration.

The decisions taken at this stage will greatly affect the outcome and costs of the processes used for cold storage, drying and restoration. It has, unfortunately, not been sufficiently appreciated in the past that care in packing at this stage will significantly reduce post-recovery costs.

High costs certainly occur if boxes are stacked on pallets in mixed sizes which will increase the potential for collapse under the weight of water, crushing and damaging the material in the process.

It should be possible to move the wet materials directly from library to freezing facility, preferably in refrigerated trucks which can be drawn up to the loading site. For small collections of books and documents, dry ice may be used to freeze the material for transport in un-refrigerated trucks to long-term freezing facilities. (Gloves should be worn at all times when handling dry ice.)

Vacuum and Freeze Drying Technologies

It is important to understand that the processes used by vacuum and freeze-drying companies differ considerably depending on the specific requirements of the material to be dried. The majority of these companies have developed their technologies for food. Few have had experience in drying paper and books and therefore may not know if their normal operating system would be safe, or cost effective for this purpose. Freeze-drying has a number of significant advantages over vacuum drying since water remains in the frozen state during sublimation, a process which removes water from the solid state to the gaseous state. This avoids most of the problems associated with expansion, sticking and wicking of water sensitive and soluble media. Vacuum drying, generally considered to be a process that changes a liquid to a vapor, will result in a much greater risk of expansion, distortion, sticking, and staining.

Although both drying methods have been found to produce satisfactory results in a number of disaster recovery events, comparison between the two following a disaster has not been made. The preference is for freeze-drying because it is the least aggressive of the two methods. However, there are situations where for instance, archival documents have been affected and where there is a low percentage of intrinsically valuable material, where vacuum drying has provided satisfactory results. The choice between the two should be governed by the nature, value and condition of the damaged material. Rare collections of significant value need to be dried with due regard to the sensitivity of the substrate and media and it is for this reason it was suggested earlier that such materials be segregated from the less rare.

Freeze-drying which is used to dry animal specimens, does so at very low internal chamber temperatures, lower than those used for most food processes. One animal specimen may take several weeks to dry. At this slow rate of drying the costs are high. Most paper and book material can withstand higher temperatures than those used to dry delicate animal specimens and there is a need for thermal energy to make the process efficient and cost effective.

If a vacuum or freeze-drying chamber is designed to operate with internal chamber heat sources, these must not touch the material to be dried, to avoid over-heating and scorching. The internal temperature of a chamber should be no greater than 100 degrees Fahrenheit (37.8 degrees Celsius). For sensitive materials, including early book material where there is a mix of paper, vellum leather and wood etc., lower than ambient temperatures or those used to dry animal specimens should be used, to dry the material slowly and under carefully monitored conditions. (Note: an upper limit of 100 degrees Fahrenheit is considered to be a safe temperature. There is insufficient data at this time to evaluate the effects of higher temperatures.)

It is important to realize that the success of any large drying system depends on the ability of the system to stop the development of mold during and after the drying process. Be aware of the risks in accepting material returned from commercial drying processes unless there is a guarantee that none will be returned damp or wet. If mold develops after return, it may not be possible to detect it, if the material remains boxed. If care was taken to segregate mold-contaminated from non-contaminated items during recovery, boxing and freezing, this will help determine if the drying was carried out properly. If mold develops in the non-contaminated material, the chances are that either the drying was not done correctly or that drying was not complete.

Mold-infected material, if dried completely under freeze-drying conditions, can be safely controlled for a short period of time, so that the spores remain quite dormant if stored after drying in an air conditioned environment maintained at 50 to 55 degrees Fahrenheit and a relative humidity of 35 percent or lower. However they must not be returned to the library or archive shelves until the mold contamination has been treated. For this reason it is recommended that, at the end of the drying cycle and while still in the drying chamber, all mold-contaminated material be sterilized. If extreme care was not taken to separate contaminated from non-contaminated materials before the drying operation, it is recommended that each drying load be sterilized.

Rehabilitation After Drying

If maximum benefits are to be gained from stabilization by freezing, every effort should be made, first, to identify and assess the value, condition, and total numbers and types of materials damaged, and second, to draw up comprehensive lists of those materials which can be replaced and those which should be reclaimed and restored. Replacement is nearly always cheaper than restoration. Volumes to be reclaimed will need to be evaluated in terms of the amount of restoration needed and probable costs. The best time to make such judgments, if a disaster preparedness plan does not exist, is after the volumes have been dried and before they are returned to the library or archive shelves

The following represent basic steps that need to be taken after drying in order to begin returning the material to normal housing environments.

Unless a drying company can guarantee in writing that no material will be returned boxed if it has a water content exceeding 7% by weight, there is a high possibility that some boxes will contain damp material that will add to the risks of post drying mold development, and which, if allowed to develop, will quickly spread to other uncontaminated material, if left unchecked and therefore undetected.

It is important when preparing specification for a drying contract that acceptable water content is not specified as an average of a book's total water content. For instance the text block of a book may be measured at far less than 7% but the water content of the book cover boards may contain higher 7% of water. Therefore it is necessary to specify that the waters content of all the books composite materials be less than 7%.

Do not store the material in unopened boxes immediately upon return from the drying facilities, even if this seems to be the most convenient action to take.

All books and paper file records should be unboxed and placed on open shelving in a well ventilated, air-conditioned rehabilitation area, well separated from the main collections. The rehabilitation area makes it easier to assess the condition of the dried materials, as well as to identify those that can be replaced and those that must be cleaned and restored.

A carefully organized, random inspection of mold-infected materials should be conducted daily by personnel trained to carry out this important task.

Whether materials have or have not been sterilized during the drying process, it is necessary to monitor their behavior as a check against the effectiveness of drying and sterilization and to identify any potential for mold growth and to take the appropriate action, before the return of these materials to the main collections.

We are concerned here with monitoring the dried volumes while they are in the rehabilitation area, and after their return to the main stacks. This monitoring should be continued at regular intervals for at least a year after they are returned to the main library shelving.

In preparing the rehabilitation area, provide about twice the number of shelves as would be needed for normal book requirements. This will compensate for the effects of distorted and expanded books and provide sufficient air space to allow the materials to regain their moisture equilibrium content which, depending upon circumstances, may take a week or two.

Theoretically, equilibrium moisture regain can be accomplished at the end of a drying run while the material is contained in the drying chamber. The chamber can be back filled with moisture to achieve the desired result. However this is only possible and safe if the drying method has been guaranteed to dry the material completely. If there remains some partially damp material at the end of a drying run, back filling the chamber with moisture would make such material more vulnerable to mold growth.

The rehabilitation area should be maintained at a relative humidity of 30 to 40 percent and a temperature of less than 65 degrees Fahrenheit. Both humidity and temperature controls must be adjustable.

It is desirable to maintain the collection in the rehabilitation area for a period of at least six months. At this time, temperature and humidity in the rehabilitation area can be gradually changed to duplicate conditions in the stack areas to which they will be returned. At the end of this time, if no mold growth has occurred, the volumes can be returned to the main stacks and monitored as indicated above. It is highly desirable but usually not practical to leave volumes in the rehabilitation area for an added six months in an environment that duplicates normal stack conditions, as a check against post drying mold growth.

No materials should be returned to the main library shelves without very careful inspection, and preferably not before all necessary cleaning and restoration has been completed.

Evaluation of Loss

When a flood or fire-damaged collection is covered by insurance, full settlement of a claim cannot be realized until the lost and damaged materials have been listed and their values established. The extent and success of possible restoration must also be determined. In the event that a claim is anticipated as a result of such damage, every item should be salvaged, frozen, and dried. After drying, the affected materials should be shelved in a specially equipped environmental storage area, isolated from the main stacks, and there inspected and monitored over a period of time. Such a policy is the best guarantee of sound judgments by custodians, consultants, and adjusters when they must calculate the degree of loss as a basis for compensation.

Summary of Emergency Procedures

(see also Appendix I)

Seek the advice and help of book and paper conservators with experience in salvaging water-damaged materials as soon as possible.

Turn off heat and create free circulation of air.

Keep fans and air-conditioning on day and night and use dehumidifiers and insure a constant flow of air is necessary to reduce the threat of mold.

Brief each worker carefully before salvage operations begin, giving full information on the dangers of proceeding except as directed. Emphasize the seriousness of timing and the priorities and aims of the whole operation. Instruct workers on means of recognizing manuscripts, materials with water-soluble components, leather and vellum bindings, materials printed on coated paper stock, and photographic materials.

Do not allow workers to attempt restoration of any items on site. (This was a common error in the first ten days after the Florence flood, when rare and valuable leather and vellum-bound volumes were subjected to scrubbing and processing to remove mud. This resulted in driving mud into the interstices of leather, vellum, cloth, and paper, caused extensive damage to the volumes, and made the later work of restoration more difficult, time consuming, and extremely costly.)

Carry out all cleaning operations, whether outside the building or in controlled environment rooms, by washing gently with fresh, cold running water and soft cellulose sponges to aid in the release of mud and filth. Use sponges in a dabbing motion; do not rub. These instructions do not apply to materials with water-soluble components. Such materials should be frozen as quickly as possible.

Do not attempt to open a wet book. (Wet paper is very weak and will tear at a touch. One tear costs at least one dollar to mend!) Hold a book firmly closed when cleaned, especially when washing or sponging. A closed book is highly resistant to impregnation and damage.

Do not attempt to remove mud by sponging. Mud is best removed from clothes when dry; this is also true of library materials.

Do not remove covers from books, as they will help to support the books during drying. When partially dry, books may be hung over nylon lines to finish drying. Do not hang books from lines while they are very wet because the weight will cause damage to the inside folds of the sections.

Do not press books and documents when they are water soaked. This can force mud into the paper and subject the materials to stresses which will damage their structures.

Use soft pencils for making notes on slips of paper but do not attempt to write on wet paper or other artifacts.

Clean, white blotter paper, white paper towels, strong toilet paper, and unprinted newsprint may be used for interleaving in the drying process. When nothing better is available, all but the color sections of printed newspapers may be used. Care must be taken to avoid rubbing the inked surface of the newspaper over the material being dried; otherwise some offsetting of the ink may occur.

Under no circumstances should newly dried materials be packed in boxes and left without attention for more than a few days.

Do not use bleaches, detergents, water-soluble fungicides, wire staples, paper or bulldog clips, adhesive tape, or adhesives of any kind. Never use felt-tipped fiber or ballpoint pens or any marking device on wet paper.

Never use colored blotting paper or colored paper of any kind to dry books and other documents.

Used and damp interleaving sheets should not be reused.

Frequent changing of interleaving material is much more effective than allowing large numbers of sheets to remain in place for extended periods.

Newsprint should not be left in books after drying is complete.

A good grade of paper toweling is more effective than newsprint, but the cost is much greater.

RECOMMENDED REFERENCE MATERIALS

Awakening Our Languages: ILI Handbook Series

(8 handbooks covering all aspects of tribal language revitalization)
Indigenous Language Institute (ILI)
560 Montezuma Avenue, 202
Santa Fe, New Mexico 87501-2590
Telephone: 505 820-0311
E-mail: ili@indigenous-language.org
Home page: www.indigenous-language.org

Encouragement, Guidance, Insights and Lessons Learned for Native Language Activists Developing Their Own Tribal Language Programs

Piegan Institute
POB 909
Browning, Montana 59417
This 50-page guide can be downloaded at:
www.grottofoundation.org under documents for downloading.

The Green Book of Language Revitalization in Practice

Edited by: Leanne Hinton, University of California. Berkeley
Berkeley, California & Ken Hale, Massachusetts Institute of Technology.
Cambridge, Massachusetts.
Academic Press, Elsevier Science, Technology & Business Books
(http://www.academicpress.com)

The Smithsonian Folklife and Oral History Interviewing Guide

By Marjorie Hunt
Smithsonian Institution Center for Folklife and Cultural Heritage
750 Ninth Street, NW, Suite 4100
Washington, DC 20560-0953

This 35-page guide can be downloaded at:
http://www.folklife.si.edu/explore/Resources/InterviewGuide/InterviewGuide_home.html

Chapter Notes, "How to Build Infrastructure"

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Endnotes:

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[1] http://www.archives.gov/preservation/modern_archives_institute.html

2. http://www.si.edu/archives/report/disaster/three.htm The entire manual can be found at http://www.si.edu/archives/report/disaster.

3. Hanta virus is a fast acting disease that can affect humans. It is transmitted by airborne particles originating with deer mice. The virus cannot survive without moisture. Hanta virus is recognized by flu-like symptoms and a buildup of fluid in the lungs.

4. Statement of Ben Nighthorse Campbell, Chairman, Committee on Indian Affairs, Joint Indian Affairs - Energy Committee Hearing on Trust Funds, March 3, 1999.
http://indian.senate.gov/1999hrgs/trst3.3/bncstmt.htm

5. This publication was produced as a public service. It may be reproduced and distributed freely in part or in its entirety. When duplicating individual articles please copy them exactly as they appear so that proper credit will be given to the originating institution. Extracts from unpublished revised text by Peter Waters, July 1993, The Library of Congress; and the Preservation Policy and Services Division of the National Archives and Records Administration (NARA).
http://palimpsest.stanford.edu/bytopic/disasters/primer/waters.html

[6]. The total of a book's leaves, which is bound into the case. The main block of sections or leaves, including endsheets and spine linings, which is bound together and then attached to the case (cover). Also called book clock and body of the book.

[7]. Oversewing is the method leaf attachment by the means of sewing sections of loose leaves one to another by hand or by machine through a 5/8 inch or more binding margin to create a textblock.

[8]. A complex carbohydrate, $(C_6H_{10}O_5)_n$, which is composed of glucose units, forms the main constituent of the cell wall in most plants, and is important in the manufacture of numerous products, such as paper, textiles, pharmaceuticals, and explosives.

Chapter 5: Where to Locate Resources in Selected Native Repositories and How to Find Selected Native Languages Materials

SEARCHING, OBTAINING AND UPDATING RESOURCES

When a group begins formulating a language revitalization program for its community, the first concern is obtaining information pertinent to the goals of the people. Obviously, the ideal is to be one of the Native language communities thoroughly studied, with a wealth of archival linguistic-based materials housed in prominent collections. This is not likely the case for most Native nations, although it is likely all Native languages were studied at one time or another. Today, it is not entirely uncommon to find dictionaries, grammar studies and many related materials for specific Native languages available, but seldom if ever used by Native nations' scholars.

One of the prevailing misconceptions among Native community language people is that little has been written or recorded concerning their languages. While this may appear to be true, even after perfunctory searches, it is likely that materials do exist and the effort to find them simply has to be upgraded. The next hurdle is overcoming the colloquial bias that written materials, especially linguistic data, are somehow tainted and suspect because they were developed by non-Natives. Again, while this may be true to varying degrees, even truly tainted materials are useful to some extent. Every available bit of language data is valuable to a fledging language program. Often a small publication or even a mere insert in a narrative can become an important piece in a larger puzzle when compiling language materials. The rather coarse admonition to never "throw the baby out with the bath water," should be strenuously applied in searching for tribal historical and linguistic materials. In the beginning of one's work, all materials will appear to be the same. It is only after attaining proficient language acquisition levels and sophistication that inadequacies in materials become apparent.

The crucial element in the beginning of language revitalization work is to locate and gain access to those collections pertaining to the Native language. There are myriad methods for accomplishing these tasks, but many feel stymied in their initial attempts. The key is to begin at the local level and expand one's search each and every day. Even veteran Native language scholars will attest to the joy of finding caches of materials after thinking the well had run dry. Beginning with the obvious public sources, the investigative trail may well lead many years later to an obscure private source.

Start in the community. Exhaust all possibilities for locating resources. Assistance can be requested from your local community through the use of bulletin boards, newsletters, television, radio and even CBs. For the most part, public school systems located on reservations or in Native communities -- or those outside, but attended by Native children – likely obtained federal bilingual and Indian education program funding over the years. Often the funding carried with it a requirement for publications to be disseminated to the community. Many of these publications contain excellent bibliographies that can steer scholars to the original documents. Also, most of the materials are rated by age and grade level, allowing for immediate use with school-age students. A researcher can find out if the school received this funding through the annual audits, which can be obtained by contacting the school, the funding agency or the Audit Clearinghouse.

The next level of inquiry should be local tribal colleges and other Native schools, community colleges and the state university or college libraries. Prior to the advent of the internet, most Native language scholars simply mailed a form letter to university and college libraries, asking if there were any of their Native language materials available for loan. Generally speaking, most of these libraries will have materials or will inform a person where they might be obtained. This still works well. With a list of universities and colleges (listed in the back of unabridged dictionaries) and a zip code book, one can send out multiple form letters asking for materials to institutions around the country. Without exception, libraries ultimately will respond, advising how to obtain copies of any of the requested materials they have any in their collections.

Contact the state historical society, either by mail or telephone, and request an index of Native materials housed in their collections. This also can be done on the internet. It is important to speak personally with staff in these institutions and explain what the goals of the language group are. Keeping in contact with a staff member usually results in related materials being forwarded in the future. In addition, most state historical offices seek to establish networks with Native people for mutual benefit and a reciprocal exchange can prove helpful over the years.

All the accolades one hears regarding the advantages of the internet for retrieval of Native language materials are true. Native language scholars agree it is an opportune place to begin when seeking materials on one's Native language. Not all Native individuals have the training or expertise to do internet searches; most do not even have access to a computer. Nevertheless, with a little help from friends and through tribal, community and public computer facilities, language scholars can use the internet to get a big jump on looking for resources and pertinent materials on their language. If an individual can at least master the user-friendly services of Google, Ask Jeeves and the many other search engines, it is possible to track down information on one's heritage language.

Using the internet to go directly to the larger archival institutions is also becoming more practical with every passing day. Among the major repositories are the Smithsonian Institution's National Anthropological Archives (NAA), Library of Congress, Magnetic Recording Laboratory, American Philosophical Society Library (APS) and the American Council of Learned Societies.

Once materials are obtained, it is crucial for safekeeping of the fledgling collection to begin an archive and to start or become part of a language archives repository or repository system. Never loan out the obtained material. Instead, issue only copies of the material. This allows for a constant upgrading and enlarging of the language archives repository.

--Darrell R. Kipp

NATIVE LANGUAGE MATERIALS AND RESOURCES IN SELECTED NATIVE ARCHIVES AND REPOSITORIES SUMMARIES OF SITE VISITS AND SURVEYS

The NMAI Project Team and the Advisory Work Group selected a range of archives and repositories to be described for this Reference Guide. Project Archivists conducted site visits and compiled extensive materials and descriptions. For other sites, local archivists and other officials were asked to complete survey forms describing their own archives and repositories. Summaries of these site-visit reports and survey forms are provided on the following pages.

Additionally, contributing scholars conducted surveys regarding collections of materials for selected languages and language groupings. Summaries of these surveys on language sources appear in the latter part of this Chapter.

These site-visit and survey summaries are intended to give the reader an indication of the kinds of materials that can be found in selected repositories that are owned and operated by Native nations and other Native entities.

The summaries also are intended to provide information about the repositories themselves -- how the archival collections are housed, treated and cared for; how the physicality of the repository safeguards the collections or poses problems for them; what constitutes the archival collection; what is the range of archives and archival repositories; what rules and restrictions apply to the archives; and what are the traits that sound repositories have in common.

Further, these thumbnail sketches are meant to give those who are interested in developing and building their own archives or archival repositories an indication of those archives and repositories that merit further examination and might serve as models.

Site visits and surveys were conducted of Alaska Native, American Indian and Native Hawaiian archives, museums and educational repositories. These include the Alu Like Center – Native Hawaiian Library of Alu Like, Inc., in Hawaii; the Cherokee Nation Heritage Center and Chickasaw Nation Archives in Oklahoma; the Karuk Tribe Archives in California; the Makah Tribe Museum in Washington; the Mashantucket Pequot Nation Museum and Research Center in Connecticut; the Navajo Nation Museum and Archives in Arizona; the Seminole Tribe's Ah-Tah-Thi-Ki Museum and Educational & Cultural Departments in Florida; and the Tuzzy Consortium Library in Alaska.

Archivists visited and surveyed archival collections of other educational institutions, as well as federal, state, private and international repositories. Summaries of those site-visit reports appear in Chapter 6.

Here are the site summaries, which give overviews of the Native archival repositories and the legacy materials housed in them.

Summaries of Site Visits and Surveys of Native Nations' Archives, Museums and Educational Repositories: Alu Like Center, Cherokee Nation Heritage Center, Chickasaw Nation Archives, Indian Pueblo Cultural Center/Institute of Pueblo Studies, Karuk Tribe Archives, Makah Tribe Museum, The Mashantucket Pequot Nation Museum and Research Center, Navajo National Museum, Seminole Tribe of Florida Ah-Tah-Thi-Ki Museum and Educational & Cultural Departments and Tuzzy Consortium Library

Alu Like Center

Native Hawaiian Library of Alu Like, Inc.
Hawaiian Legacy Project
458 Keane Street
Honolulu, Hawaii 96730
Robert Stauffer, Managing Editor
October 8, 2004

Alu Like, Inc., was incorporated in 1975 as a private, nonprofit service organization formed to promote the well-being of the Hawaiian Natives now and into the future. It is governed by a statewide, volunteer, 13-member Board of Directors and headed by a President/Chief Executive Officer, Mervina K.M. Cash-Kae. It has grown from a $125,000 organization to a $20 million, 20-office organization and has served 100,000 persons across the state. It acquires its budget from federal, state, county and private sources. Alu Like provides a range of services to the Native Hawaiian community, from economic development, assistance in business, employment training and preparation, to educational and childcare service for young parents and library services.

The Native Hawaiian Library was founded in 1985 and provides library services to the public, with outreach centers in Hawaiian communities. The library resources include a catalog for books about Hawaii, newspapers, DVDs, videos, CDs, artifacts and quilts from the Hannah Baker Quilt Legacy. The Hawaiian Legacy Project is part of the language preservation and revitalization effort of Alu Like, Inc.: Native Hawaiian Library Circulation Desk, 808-535-1360 or 800-682-0525. Native Hawaiian Data Resource Center, 808-535-1365. Native Hawaiian Language Legacy, 808-535-1350.

The Hawaiian language has changed over time, but is still spoken today. The Managing Editor's interest in language preservation is to show how the language was originally used and how it is used today. By understanding those differences and using materials reflecting those changes, there is the possibility to enhance language use, increase the teaching of the language and assure student interest.

There are six central archives in Hawaii and each one has its own staff, archivist and collections. The archives are located in Honolulu and hold Hawaiian Language materials. They are:

Hawaiian Mission Children's Society Library, 553 South King Street, Honolulu, HI 96813-3002, 808-531-0481.

Hawaiian Historical Society Library, 566 Kawaiahoo Street, Honolulu, HI 96813, 808-537-6271, http://www.hawaiianhistory.org/libmain.html. Barbara Dunn, Administrative Director and Librarian.

Kamehameha Schools Archives, Midkiff Learning Center, 249 Konia Circle, Honolulu, HI 91817, Janet Zisk, Archivist.

State of Hawaii, Archives Division, Iolani Palace Grounds, Honolulu, HI 96813, 808-586-0302, Historical Records Branch, Luella H. Kurkjian, Chief.

Bishop Museum, 1525 Bernice Street, Honolulu, Hi 96817-2704, www.bishopmuseum.org, DeSoto Brown, Collections Manager, Archives.

University of Hawaii at Manoa, Hamilton Library, 2550 McCarthy Mall, Honolulu, HI 96822 USA
808-956-0952 or 956-2611.

The Native Hawaiians had over 100 million pages of material printed in their own language by 1840 and a dictionary by 1865. Additionally, there were hundreds of Hawaiian Language books, government documents, letters and reports, and more than a dozen newspapers written in the Hawaiian Language. According to him (who is referred to here?), the critically important language material can be found at the Princess Bernice Pauahi Bishop Museum and The Archives of Hawaii, both located in Honolulu, Hawaii (see summaries in Chapter 6 for the Bishop Museum and The Archives of Hawaii).

Cherokee Nation – Cherokee Nation Heritage Center

Tahlequah, Oklahoma
Tom Mooney, Archivist
November 22, 2004

In this survey, the first five questions -- on the mission statement, collection policy, size of entire collection, size of Native American collection and amount of Native language material -- were not answered.

Of the whole collection, paper makes up 80%; photographic material, 5%; audio, 5%; video, 1%; digital, 2%; and microfilm/microfiche, 2%. The Center does have Native language audio material, but no amount was specified.

For preservation methods, the Center uses acid-free storage. In the research room, no ink pens are allowed, staff must be present with researchers and only one folder can be checked out at a time. The Center does not have an archives research guide, but this is a high priority for the coming year. There is one archivist and one curator of collection on the staff. The Center has an internet site at www.cherokeeheritage.org. The education director works with the schools and most of the programming is on site. The Center has had touring exhibits at libraries and schools.

The Center's archives are in a basement and flooding occurs there. Everything is stored off the floor. There are "water bugs" installed that are tied in with the security system to alert about floods in the off-hours. Additionally, a night watchman keeps an eye on this problem during storms. The Center is investigating other options, such as the addition of a water-collection reservoir inside the ramp entrance that would be served by a separate sump. Under this approach, water entering the building would go first into the reservoir and then be pumped outside.

The Cherokee Nation has Cherokee Language materials. Anyone may examine the materials and there are no conditions on looking at it. In general, the materials are accessible; however, staff may use their

discretion in denying access. No one has ever been denied. Again, if the condition of the record allows reproduction, there usually is no problem. Some records, mostly legal, have donor restrictions on being seen; otherwise, copies of most are for sale. Cherokee Nation is contracting out the conversion of audio tapes to CDs and soon will reprint some manuscripts from the archives as a commercial venture. At this point, the Center does not know who will be given credit.

Chickasaw Nation – Archives

Ada, Oklahoma
Joshua D. Hinson, Archivist
November 12, 2004

The mission statement and collection policy are being developed. The collection is 100% Native American, but the size of the entire collection has not been accessed.

The Archives has Native language material in language texts, historical documents, a dictionary manuscript and a children's book in Chickasaw. The Archives has Chickasaw Language video and audio material. The Archives holds paper (15%); photographic material (70%); audio (5%); video (5%); and microfilm/microfiche (5%).

For preservation methods, the Archives has a digital collections management program and uses digital scanning. It also uses the usual methods of archival boxing, interleaving, secure storage, etc. It has secured storage rooms, which are temperature controlled, but not humidity controlled.

There is no research room currently. Users of archival materials use the library space as a research area. The Archives is in the process of creating a research guide. It is developing an Internet website and advertises regularly in the *Chickasaw Times* newspaper. There is one full time archivist.

Some problems are: flooding, lack of humidity control, basement location in old kitchen/dining area of senior site. Central air conditioning and filtering keeps temperatures roughly constant. The Archives hopes to address site issues with a new building at some point in the future.

This is a newly established archives, just over one year old and quite early in its development. It will have Standard Operating Procedures, a Mission Statement, Collections Policy, etc., completed in fiscal year 2005.

Indian Pueblo Cultural Center/Institute of Pueblo Indian Studies

2401 Twelfth Street, NW
Albuquerque, New Mexico 87104
Ted Sturm, Associate Director - 505-843-7270
August 25, 2004

The Indian Pueblo Cultural Center has a predominantly Native American collection and contains materials on the nineteen Pueblo tribes of New Mexico, as well as the Hopi, Navajo, Comanche, Kiowa and some Apache Tribes. The Indian Pueblo Cultural Center has not yet written any policies for the Institute for Pueblo Indian Studies (IPIS) archive collection. A small amount in the IPIS collection relates to Native American Language. There is a collection of Oral History recordings by the Jemez Pueblo elders and materials published by Pueblo scholars in essay, short stories and poetry formats. The IPIS collection is being catalogued and it is unclear how much material pertains to Native language.

The holdings in the IPIS archives and research library consist of approximately 3,000 books and monographs; 50 journals, magazines and newspapers; photocopies of newspaper clippings filed by subjects; photocopies of government documents from state and federal agencies; 115 rolls of microfilm and microfiche; 85 maps; photographs, postcards, slides, audio and video tapes and sound recordings;

45 boxes of Special Collection relating to the All Indian Pueblo Council and Albuquerque Indian School; Sophie Aberle collection on Pueblo Indian Health; and 200 boxes of documents on the Northern Pueblo Tributary Water Rights Association in the ongoing water rights case (this collection is restricted to attorneys' use only). The IPIS collections are kept in boxes and manila folders with minimum preservation treatment. Cataloguing and data entries on archive materials are priority until someone is officially hired to care for the materials. They have a limited budget in purchasing conservation materials for their collection.

The IPIS collection storage is in the basement of the Indian Pueblo Cultural Center, in two small adjoining rooms, approximately 10' x 10', with little ventilation and no climate control. The overcrowded storage space has boxes on shelves, floors and tables, and one-fourth of them have not been reviewed or processed. Apparently the Associate Director is the only person who has access and retrieves the IPIS collection from storage. Appointments are required to view the IPIS collection and use office space to do research and review materials. There is a small fee for copying documents. The Indian Pueblo Cultural Center has no permanent staff to supervise the organization of the IPIS collections and has not hired an archivist or librarian. Access is coordinated by the Associate Director, who volunteers his time with 10 other volunteers who come in to organize, catalogue and enter data on the collection. It has been a volunteer effort to maintain the archival collection since the research center has opened in 1977. They estimate the volunteers put in 5,000 to 6,000 hours a year. The volunteers are to be applauded for keeping this collection intact, managing the extensive workload and still allowing access to the public.

The IPIS collection has several problems in its environment, storage space, security system and preservation conditions. The Indian Pueblo Cultural Center has a tremendous amount of valuable information on the Pueblos of New Mexico. The invaluable resources beg for an archival preservation program, staff and space to properly support the IPIS collection. The IPIS collection continues to accept donations and encourage the All Indian Pueblo Council to support and recognize the importance of the collection.

Karuk Tribe – Archives

Happy Camp, California
Susan Gehr, Language Director
December 6, 2004

There is no mission statement for the Archives. There is a Language Program Director and soon there will be a Cultural Center Director, but there is no staff position dedicated to the Archives.

The Karuk Language Restoration Committee works in conjunction with Karuk tribal members and the Karuk Tribal Council to assist in the renovation and restoration of the Karuk Language. This committee will provide direction in the development of the curriculum, policy and teaching strategies to ensure that the Karuk Language is taught to all tribal members interested in preserving this part of their heritage.

The collection consists of paper (50%); photographic (5%); audio (30%); video (5%); digital (5%); microfilm/microfiche (5%).

Preservation methods consist of keeping all materials away from light; and audio and digital materials are backed up to an external hard drive.

The Archives does not have a research guide, but a file index is maintained for the paper collection. There are no outreach programs at this time.

Access to the Archives is unregulated. Many people have access to the archives and the gift shop inventory. There is no security alarm on the building. These issues have not yet been resolved.

The Archives does not have a policy on copyright, use or photocopying of materials. It also does not have

a policy regarding who they allow to examine their catalogs or materials. It allows sales of photocopies of the materials. The Archives gives away a lot of copies, but it also sells materials to cover future duplication costs. The Archives had unfortunate experiences with grave and village site desecration, as a result of distributing maps with specific village locations, so it does not distribute those maps anymore, and Karuk people remove the maps from tribally-sold publications that were published with that information.

All media are being produced: print text, video, print art, art in other media, music on tape, CD, videotape and digital. Materials are being produced under contract and by employees. Original music performances are being copyrighted through the Copyright Office. The Karuk Tribe of California and the artist are credited as authors of the materials produced.

Makah Tribe – Makah Museum

P.O. Box 160
Bayview Avenue
Neah Bay, Washington 98357
360-645-2711
mcrc@olypen.com
Janine Bowechop, Director
Kelly Parker, Archivist
August 31, 2004

The Museum holds a number of collections, both archeological and archival. The archeological collections are known as the Ozette Collection, named after one of the original Makah villages buried during a mudslide some 500 years ago. The collection contains 55,000 objects made of wood or wood parts, including 500 objects from the Hoko River Site, a Makah fishing camp occupied some 3,000 years ago. The collection includes painted wooden items and a micro-blade made of quartz crystal that is approximately 2,500 years of age.

The Makah Archival Collection is made up of 5,000 linear feet of film, 852 hours of Makah oral history, 375.8 hours of Makah Language spoken by Elders, 41,000 sheets/pages of unpublished Makah research, 30 rolls of microfilm/microfiche, 200 hours of traditional Makah songs, 70 Makah-related books and 2,000 historical Makah photographs.

The staff consists of a Director and an Archivist. The Museum holds a partnership with the Washington State Libraries, which allows for state-of-the-art computer connection.

Mashantucket Pequot Nation – The Mashantucket Pequot Museum and Research Center

Archives & Special Collections
110 Pequot Trail
Mashantucket, Connecticut 06338
Jonathan Ault, Head Archivist
August 10, 2004

In the mid-1990s, the Nation started collecting books, manuscripts and library and archival material relating specifically to the Mashantucket Pequot Nation and more generally to other Native nations. The Archives has a nascent records management program for the casino, hotel and other Nation enterprises, government, council and elders.

The vast majority of material is Native American. The entire collection is about 900 linear ft. Paper constitutes about 70%; photographs 15%; video 10%; and audio 5%. The library has the microfilm. The linguistic material consists of 52 books, four handwritten manuscript items, 29 newspapers, two posters,

12 periodicals, one pamphlet, one photocopy packet and 12 DAT cassettes. Possibly the last person to have knowledge of the language was Fidelia Fielding, who died in 1906. Frank Speck worked with her in 1904 and compiled a Mohegan Pequot glossary. Charlene Jones and other Pequot people are involved in the present revitalization of the tribal language.

Many archival items are restricted: documents relating to the Museum's construction, personnel files, Nation council records, genealogy information, corporate records, sacred material and other sensitive material. Non-Pequots must get written permission from the executive director of the Museum to access restricted records.

There is good climate control (70E F/50% RH), but no cold storage. Suitable climate is maintained by a central HVAC system and dedicated air handlers (95% filtration), and monitored by four hygrothermograph units. There is an integrated pest-management program. Black foam core is placed in windows in the stack area to block sunlight. There is a head conservator on the Museum staff. There are electronic spacesaver stacks, that staff would now prefer to have been manual, not electronic ; map cases for oversized items; and a vault for the most valuable items in collection.

There is a very large storage area and a separate processing room. The research room has two tables, each of which can accommodate two researchers, and one public access computer. In certain cases, patrons use digitized or photocopied material, rather than originals. Patrons must use cotton gloves and pencils when handling materials, and must store coats and bags in a locker room. There are two full-time archivists and three volunteers.

The Archives has several annotated bibliographies of a general and thematic nature which are accessible as Adobe pdf files on the Museum's website (www.pequotmuseum.org). It conducts workshops for the public and Pequot elders on preservation of papers and photos. There are open house events, such as those for area collegiate faculty and area K-12 faculty. Also, there are several presentations that showcase pertinent archival material.

The Archives allows authors and publishers to use images of items from its collections to illustrate books. It requires a credit line for each image used, citing the Mashantucket Pequot Museum and Research Center, Archives & Special Collections as the source. Pequot people, Museum staff, scholars and researchers can examine materials. Non-Pequots need written permission from the Museum's executive director to access restricted materials.

Staff members will photocopy materials, if the items are not too fragile. Fragile and valuable items have been digitized. Patrons can purchase a computer printout or a photographic print. Fragile material that has not been digitized does not get copied. Prints are sold to patrons for private use and to authors and publishers for commercial use. In the latter case, the authors and publishers sign agreement forms, pay in advance and send a complimentary copy of the published book. Textual, video, print art, other media art, music and digital media are being produced. The creator of the material – Pequot person or Nation government entity or enterprise – is credited as the author of the material.

Navajo Nation – Navajo Nation Museum

P.O. Box 1840, Hwy 264 & Loop Road
Window Rock, Arizona 86515
928-871-7941-tel / 928-871-7942-fax
Eunice Kahn, Archivist - 928-810-8539
January 25, 2005

The mission of the Navajo Nation Museum is to bridge the past, present and future of the Navajo (the Diné) of the Four Corners region. The Museum will foster and enhance the unity and harmony of the Navajo people by providing a museum-standard facility and educate our people and the general public regarding issues from the Navajo people's perspective. The Museum will continue to accept items of

cultural significance to the Navajo, and the prehistoric populations. The Museum welcomes the guidance and assistance of the *Hataalii* Advisory Council and other elders to convey our history and show our way of life as it is passed from generation to generation.

The Navajo Nation Museum (NNM) Archive is organizing and cataloguing the collection and determining the size of the entire collection. Photographic materials dating to the early 1900s comprise a large part of the collection. The NNM archive collection is 98% Native American and predominantly on the Navajo Nation. Other tribal groups represented are Hopi, Apache and Zuni Tribes. The NNM archives relating to Native American language consist of written language the Navajo Code Talkers used during WWII, educational materials, essays and poetry. There are small collections of sound, film and video recordings on Native language. The NNM archival materials are approximately 70% photographic prints, negatives, nitrate-base negatives and glass plates; 20% paper documents; 5% books, magazines and journals; 3% audio and sound recordings; and 2% brochures, newspaper and clippings.

The NNM is organizing and rehousing the entire archive collection to museum-quality standards, with preventive conservation treatment, data entry and cataloguing. The paper documents are stored in acid-free folders, archival metal-edge storage boxes or bankers boxes; the photographs and negatives are placed in polyethylene sleeves and non-buffered white envelopes. The Archivist monitors the hygrothermographs and pest and environmental concerns.

The NNM has two storage areas with climate control, incandescent lighting and card key access, and the vault is approximately 400 square feet, with a high security access and a fire suppression system of CO2 nitrogen. The vault storage has a double card key entrance, camera surveillance and a motion detector system. The dark room storage is 10 x 15 ft., with door key access, metal shelving and computer for data entry. The lab room contains a large table to catalogue, examine and prepare preservation treatment for the museum collections. All storage areas are closed to the public. The NNM Archives have no designated area to view materials, so researchers use the conference or lab rooms when available. With limited access while collections are being catalogued, appointments are required with the Archivist. In the main lobby of the museum, a showcase displays archival materials to the public.

The NNM employs twelve staff members -- Museum Director, four Museum staff (includes Archivist), two exhibits technicians, administrative assistants and clerical, security and facility maintenance workers. The NNM offers rental space for conferences, banquets and receptions; hosts two annual events yearly; provides group tours; promotes educational and cultural activities; and has rotating exhibitions and a gift shop.

The Navajo Nation has a long history of involvement in cultural resource, preservation and archaeology. In 1956, the Navajo Nation established a Tribal Museum, an active archaeological and historical research program. By August 1961, the Navajo Tribal Museum was operating and dedicated to the preservation and presentation of the cultural heritage of the Navajo people. In September 1997, the Navajo Nation Museum, Library and Visitor's Center's contemporary building opened in Window Rock, Arizona. This octagonal building depicts the traditional Navajo *hoogan* and is intended to be an educational resource. It houses the NNM's permanent, photographic and archive collections. Cultural and educational programs sponsored by a variety of organization are hosted in the facility's conference rooms, auditorium, food service facility and outdoor amphitheater. The Museum's gift shop features jewelry and educational materials on Navajo culture. The NNM exhibitions explore diverse aspects of the Navajo people and culture. The NNM, Library and Visitor's Center also house the Navajo Nation Library and Research Collection, the Miss Navajo Nation office and the Tourism office.

Seminole Tribe of Florida -- Ah-Tah-Thi-Ki Museum

Big Cypress Reservation
3170 N. 64 Ave
Hollywood, Florida 33024
www.seminoletribe.com/museum
Tom Gallaher, Development & Program Coordinator
July 21, 2004

The Ah-Tah-Thi-Ki Museum is situated on a 60-acre cypress dome in the Big Cypress Swamp. The Museum includes 5,000 square feet of exhibits in lifelike displays depicting hunting, cooking, traveling, marriage, folklore and spiritual beliefs of Seminole and Miccosukee Peoples.

Part of the Seminole Collection on loan from the Smithsonian Institution is featured at the Museum. Included in this collection are beaded sashes, medicine baskets, moccasins, turtle shell rattles, silver works and leggings. The Museum also exhibits its own holdings, which include Seminole patchwork clothing and southeastern beaded shoulder bags.

Within the gallery are user-friendly computers with information on the Seminole Tribe's culture and history.

The Museum is designed to protect and preserve culture, language and cultural items, while educating the public and the Native American people. In the Seminole (Muscogee) and Miccosukee Languages, Ah-Tah-Thi-Ki means "to learn."

The Mission Statement of the Museum is: To preserve, interpret and share the culture, language and customs of the Seminole Tribe of Florida.

Seminole Tribe of Florida – Educational and Cultural Departments

3100 N. 63rd Avenue
Hollywood, Florida 33024
Louise Gopher, Educational Director
July 15, 2004

The Seminole Tribe's Educational and Cultural Departments work daily to strengthen the Native languages by providing language and cultural classes on the 5 Seminole reservations in Florida. Classes are held on the Big Cypress Reservation and the Ahfachkee Day School K-12 grades. The Muscogee (Creek) and Miccosukee Languages are spoken on the Tampa and Hollywood Reservations and in the preschool programs. In Brighton, 40 tribal students within the Okeechobee County School District attend classes one day a week in Muscogee culture, language and history during the school year through an enrichment program known as the "Pull-Out Program."

The Seminole Tribe is compiling dictionaries in the Miccosukee and Muscogee Languages. Language documentation is underway through the Seminole Broadcasting Company and the Big Cypress Ah-Tah-Thi-Ki Museum. Seminole people have been enrolled in the Florida Gulf Coast University's Certification Program in the teaching of Muscogee and Miccosukee Languages.

A number of respected keepers of the oral history, stories, medicine and spirituality have died recently. Among those persons whose passing is marked by the Seminole Tribe in language statements are: Sonny Billie (1935-2003), Miccosukee Tribe of Indians Bundle Carrier, Tribal Chairman (1979) and Empathy of Traditional Chief. Mary Frances Johns (2004), Contributor to Museum of Seminole Culture, Recorder at the Florida Museum of History, University of Florida at Gainesville. Henry John Billie (2004),

Canoe Carver. Susie Billie (2003), Medicine Woman. Billie Larry Cypress (2004), Director of the Ah-Tah-Thi-Ki Museum, Big Cypress, Florida.

The senior citizens and grandparents are the fluent speakers of the Muscogee and Miccosukee Languages in Florida today.

Tuzzy Consortium Library

P.O. Box 749
Barrow, Alaska 99723
907-852-1720
David Ongley, Director
November 2, 2004

The Tuzzy Consortium Library began in 1988 as a consortium, multi-type library serving the local college and the public. It was designed to serve the students and faculty of the Ilisagvik College and to provide library service to the North Slope Borough and the City of Barrow. The Borough is responsible for the Library's funding. The City provides the facility, maintenance and utilities. The College is responsible for the management of the Library. This unique partnership appears to be working well.

Within the Library's collection are 3,000 items and no artifacts. The collection is made up of 90% paper, 5% photographs, 1% audio, 3% videos and 1% of microfilm-microfiche. There are 220 boxes of newsprint which amount to approximately 850 linear feet. That newsprint is presently being digitized. The methods of preservation used here are digitization, Mylar sleeves and acid-free files and containers.

The Library, the College, the Borough and the City all work together to provide services in language education, revitalization and preservation. This community is working together to make certain the Native Language of the People of Barrow is taught within the schools and supported outside of the classroom.

HOW TO FIND SELECTED NATIVE LANGUAGE MATERIALS

Distinguished language experts worked with the NMAI Project Team to provide summaries of sources for selected Native languages and language groupings. Dr. Blair A. Rudes compiled the Algonquian, Catawba and Iroquois Languages Sources in this locating guide. Archivist Faith Damon Davison of The Mohegan Tribe prepared the first section below on Mohegan Language Sources, which is followed by Dr. Rudes' Mohegan Language Bibliography – Archives.

This section of the Chapter provides detailed information on sources for these particular Native languages. These examples also are intended to suggest possible sources and types of holdings for other Native languages.

Mohegan Language Sources

Research in the Old World has yielded copies of countless documents and maps, the location of the eighteenth century burial site of a Mohegan Sachem in England and most recently the return of four Mohegan artifacts from France. Work will continue in the traditional countries where we expect information to exist, using resources in the United Kingdom, France and the Netherlands. Countries such as Switzerland and Germany will also be investigated, primarily for artifacts. The inhabitants of these countries, as well as others, have been avid "collectors" of Indian artifacts since the eighteenth Century. All of our efforts have resulted in a broadening of our understanding of the events and times that shaped our People into the Tribe that we are today.

We are also intending some Canadian research, indicated for some time based on our work in France. Colonial records demonstrate that the French in North America kept a close eye on a large Mohegan

contingent that was fighting in the various wars we now call the French and Indian Wars (from 1682 through 1763). The Mohegan fighting force was stationed near Niagara at times and apparently developed into a community. The Mohegans were part of British forces (Roger's Rangers, etc.) that made frequent assaults on French towns and forts, on and around what is now the Canadian border. The French also documented LaSalle's travels; he was accompanied by two Mohegans he hired "below Boston" on his first trip, who he hoped would instruct him in their language. They were still with him when he was murdered on his last exploration.

Past research trips to England for the Tribe have established beyond any reasonable doubt, through long hours of work, that a Mohegan Sachem who was arguing the Tribe's land claims in England died there of smallpox while the case was being heard, and was buried in what is now Southwark Cathedral land in 1736. The Cathedral has been satisfied of this fact and is interested in allowing the Tribe to erect a fitting memorial to its fallen leader.

Also in England, we have forged friendly relations with a department located in St. James' Palace known as the Surveyor of the Queen's Works of Art. This is the department that could be most likely to be of assistance in obtaining information on the soapstone pipe that the Sachem Oweneco had given Queen Anne of England (circa 1702), pursuant to presenting the Mohegan Land Case to her council when the Mohegan Tribe was seeking justice from the Crown against the Colony of Connecticut. This was a "double" pipe that had been washed up on a beach in Hammonasett (Ct. shore of Long Island Sound). According to Oweneco, the pipe had been kept in esteem in his family for generations. Anne being a Stuart, it is just as likely to have been handed off to one of her favorites as to have been entered into the Royal Collections. It may even have ended up in the Sloane Collection, the base from whence the British Museum sprang, or it could have even gone back in the baggage of her widowed husband when he returned to Denmark. Yet another mystery to be solved.

The University of Nottingham yielded a copy of the petition that Oweneco sent along with his pipe to Queen Anne.

At Bodleian Library at Oxford University, we have located a holographic exercise paper written by a young Mohegan who attended Moors Charity School. Rev. Wheelock submitted Joseph Johnson's "set piece" in script to the Society for the Propagation of the Gospel to show how well his students were taught, a deserving cause to be funded, indeed. Johnson would go on to be a missionary to the Iroquois, a sailor, and then a willing worker for Samson Occum's Brothertown Movement, marrying one of Occum's daughters, too. He worked for Washington during the American Revolution. He lost his life during a mission to the tribes; he was exhorting them to come in on the side of the Americans. He left two young sons behind.

And from the War Office papers at PRO, we have copies of muster lists from King William's War through the French and Indian War, naming the Mohegans who fought on the side of the Crown, a testament to the willingness we have shown to fight alongside our neighbors against a common foe.

The Dutch were trading with Natives in Connecticut almost thirty years prior to English settlement. Dutch mercantile interests and the Dutch government made note of the Indigenous Peoples with whom they established commercial and later land transactions. Although there was a fire in Albany at the New York State Archives back in the early part of the twentieth century, duplicate records exist in the Old World for some of the records that were lost.

The many discoveries we have made abroad have broadened our knowledge of our ancestors and their interaction with the settlers. Perhaps copies of some of these papers existed at one time in our state archives, but they no longer exist on these shores. Materials dealing with Native Peoples often seem to be ephemeral at times. History books written through the twentieth century for general consumption often ignore Indian information that is kept alongside that of the dominant culture. Writers in the nineteenth century overlooked this material as being too mundane and, since the Red Man had disappeared from New England, it was either of little interest or not sensational enough. Writers and editors of the voluminous compendiums of state histories, such as O'Callahan, Brodhead or Hoadly, easily could have

mined the records for the major salient points about the dominant culture, leaving not only minorities, but also those below the poverty line without a "voice." I would suggest that people looking to flesh out their known history, retrace some of the steps that past writers have taken, and then go back to the original documents, rather than rely upon the secondary sources.

Be certain to check the references of well researched books – sometimes there may be a reference for a repository that had seemed like an unlikely place to look at first glance.

Ask at each institution where you are conducting your research if they have inventories relating to their collections which may have items of interest to you. Often there are handwritten or typescript materials that have not made it on to their online catalog.

Talk with the people who actually do the work. It may be flattering to have a meal with the director, but you are apt to be more rewarded by taking an employee to lunch. The people who actually work in collections know them far better that the person who is that institution's figurehead.

The following are some of the foreign institutions which hold documents and/or other materials containing information about The Mohegan Tribe, an Algonquin-speaking people of Connecticut.

--***Faith Damon Davison*** *(Mohegan), Archivist, The Mohegan Tribe*

The following is a brief bibliography for New England tribes' documents in foreign institutions.

Alston, R.C.
Handlist of Library Catalogues and lists of books and manuscripts in the British Library Department of Manuscripts. (London: The Bibliographical Society, 1991) **Britain**

Andrews, Charles M.
Guide to the materials for American history, to 1783, in the Public Record Office of Great Britain: The State Papers. V.1. Carnegie Institution of Washington, Pub. 90A. (Washington: Carnegie Institution of Washington, 1912) **Britain**

Guide to the materials for American history, to 1783, in the Public Record Office of Great Britain: departmental and miscellaneous papers. V.2. Carnegie Institution of Washington, Pub. 90A. (Washington: Carnegie Institution of Washington, 1914) **Britain**

Andrews, Charles M., and Davenport, Frances G.
Guide to manuscript materials for the history of the United States to 1783, in the British Museum, in minor London archives, and in the libraries of Oxford and Cambridge. (Washington: Carnegie Institution of Washington, 1908) **Britain**

Barringer, George A.
Cataogue de L'Histoire de L'Amerique. (Paris: Bibliothéque Nationale Department des Imprimes, 1903) **France**

Faust, Albert B.
Guide to the materials for American history in Swiss and Austrian archives. (Washington: Carnegie Institution of Washington, 1916) **Switzerland**, **Austria**.

Fish, Carl Russell.
Guide to the materials for American history in Roman and other Italian archives. Carnegie Institution of Washington, Pub. 128. (Washington: Carnegie Institution of Washington, 1911) **Italy**

Griffin, Grace Gardner.

Guide to manuscripts relating to American history in British depositories reproduced for The Division of Manuscripts of the Library of Congress. (Washington: The Library of Congress, 1946) **Britain**

Guide des sources de l'histoire des Etats-Unis dans les archives Francaises. (Paris: [nd]) **France**

Hill, Roscoe R.
American missions in European archives. (Mexico, DF: Comision de Historia, Instituto Panamericano de Geografia e Historia, 1951) **Europe**

Learned, Marion Dexter. *Guide to the Manuscript Materials Relating to American History in the German State Archives*. (Washington: Carnegie Institution, 1912). **Germany**

Leland, Waldo G.
Guide to materials for American history in the libraries and archives of Paris, vol. 1, Libraries. (Washington: Carnegie Institution, 1932). **France**

Guide to materials for American history in the libraries and archives of Paris. Vol. 2, Archives of the Ministry of Foreign Affairs. [Reprint of 1943 publication] (New York: Kraus Reprint Corporation, 1967.) **France**

Matteson, David M.
List of Manuscripts Concerning American History Preserved in European Libraries and noted in their Published Catalogues and Similar Printed Lists. (Washington: Carnegie Institution, 1932). **Europe**

Parker, David W.
Guide to the Materials for United States History in Canadian Archives. (Washington: Carnegie Institution, 1913). **Canada**

Robertson, James A.
List of Documents in Spanish Archives relating to the History of the United States. (Washington: Carnegie Institution, 1910). **Spain**

Shepherd, William R.
Guide to the Materials for the History of the United Sates in Spanish Archives. (Washington: Carnegie Institution, 1907). **Spain**

Belgium
Prince Leopold Royal Archives – Brussels (1630s – Maps of New England, other MS materials)

Britain
Ashmolean Museum - Oxford
Bodleian Library – Oxford (Mss – Claredon [plantations in NE]; Lord Wharton's Papers; Montagu – George Whitfield; SPG records – Occum; Mss North and Mss Wood –Wm. Fiennes Lord Saye papers, Letters of Increase Mather; Tanner Mss - Mather)
British Library – London (MS – Rare Books Landsdowne, Sloane, Egerton, Burey Collection – Newspapers.)
Center for Kentish Studies [Major Rogers Journal]
The Church Missionary Society Archives [157 Waterloo Rd. London] – Missions among Delaware and Mohegan 1740-1808
Dr. Williams Library – London. John Eliot Papers 1656-82, correspondence with Richard Baxter, Rev. George Whitfield.
Duckworth Laboratory, Dept of Bio. Anthropology, U. of Cambridge
Guild Hall Library – London (Experience Mayhew's papers, some of Gurdon
Saltonstall's diary, etc.; Society for the Propagation of the Gospel)
Hampshire Record Office – American Mss Records

Hatfield House – Salisbury Papers [Gorges]
House of Lords Record Office (Main Papers, American papers in the HLRO)
Lambeth Palace Library, London – SPG vol. 13-14
Moravian Church – 5 Muswell Hill, London – Conversions/missions
Museum of Mankind Anthropology - London
Natural History Museum - London
North Yorkshire County Record Office (Genealogy of Uncas)
Pitt Rivers Museum – Oxford
Plymouth and West Devon Record Office – Plymouth (W360-57)
Public Records Office London/Kew [WO series (Muster roles, etc.); CO series (Board of Trade, Privy Council minutes, etc.); T1 & T79 (treasury accounts, Indian Affairs); ADM (Admiralty Rec.s, New England);
Rhodes House Library– Oxford (SPG calendars of records)
Royal Archives – Stuart Mss 1 – Correspondence of James II.
Royal Collection, The Queen's Works of Art – looking for Oweneco's pipe
Royal College of Surgeons - Osteology specimens
Royal Society Library – London (Mather, Boyle Papers)
Trinity House – Records of Samuel Purchase
University of London (Mss / Artifacts /pictures?)
University of Nottingham, Dept. of Manuscripts and Special Collections (MiC37/1 – letter from Oweneco to Queen Anne)
Whitehall Library (Old War Office building) London – 14 "booklists" on Indian Wars

Canada
National Archives of Canada – Ottawa (Canada papers of the second earl concerning North America, 1765-1782; Papers of Francis Legge, governor of Nova Scotia, 1773-1782)

France
Bibliothéque D'Arsenal
Bibliothéque Institute de France
Bibliothéque Nationale. Paris/Richelieu (Maps, Reference rooms, Western mss)
CARAN [National Archives]
Centre des archives d'outremer – Aix-en-Provence (LaSalle; lots of material on the Cherokee, Choctaw, Creeks, Delaware, and more)
Musée de l'Homme Paris – students' thesis
Musée de la Marine – Brest – Vinciennes (Wars in North America)
SHM (Marine Archives) Paris
SHAT (Service Historique de l'Armee de Terre) Vincennes
Institut D'Art et D'Archeologie, Universite de Paris, Pantheon Sorbonne
Musée d'Annecy – Inventaire des collections – Smithsonian exchange, 19th century

Netherlands
Royal Archives – Den Haag
Dutch Royal Society – Utrecht

Scotland
Edinburgh University - Special Collections Mss
National Library of Scotland - Edinburgh (Mather; Micmac, Earl of Stirling Registers;
Scotland National Archives -Edinburgh

Mohegan Language Bibliography - Archives

[from *Bibliography of the Algonquian Languages* by James Constantine Pilling, Washington, D.C. : Smithsonian Institution, Bureau of Ethnology: J.W. Powell, Director, 1891]

Adelung (Johann Christoph) [and Vater (J.S.)]
Mithridates oder allgemeine Sprachenkunde mit dem Vater Unser als Sprachprobe in (der?) nahe fünfhundert (Sprachen) und Mundarten, von Johann Christoph Adelung, Churfiirstl. Sachsischen Hofrath und Ober-Bibliothekar. Erster[-Vierter] Theil. Berlin, in der Vossischeu Buchhandlung, 1806[-1817.] 4 vols. (vol.3 in three parts) 8vo

Vol. 3, pt. 3

Mohegan grammatical comments, pp. 394-399

Lord's Prayer, p. 400 [from Edwards]

Vocabularies pp. 343-346, 403-404 [from Barton and Long]

Allen, (William).
Wunnissoo, or the Vale of Hoosatunnuk, a poem, with notes. By William Allen, D.D., A member [&c. four lines]. Boston: published by John P. Jewett and company. Cleveland, Ohio: Jewett, Proctor & Worthington. New York: Sheldon, Blakeman & Company, 1856. 8vo.

An account of Indian languages, pp. 174-192

Remarks on the structure of the **Mohegan** language, with three lists of **Mohegan** words (from John Lyon Gardiner, an Indian woman named Sarah Mayweep, and from Sarah Lannan Huntington), pp. 188-191.

Of the **Mohegan** language, including a vocabulary of 150 words, pp.232-236.

American Museum.
The American Museum or repository of ancient and modern fugitive pieces, prose and poetical. For January, 1787. [Two line quotation.] Volume I [-XII]. Number I. Philadelphia : printed by Matthew Carey, 1787-1792. 12 vols. 8 vo. Edited by Matthew Carey

Edwards, (J.), Observations on the language of the **Muhhekaneew** Indians, vol. 5, pp.21-25, 141-144.

American Society.
The first annual report of the American Society for promoting the civilization and general improvement of the Indian tribes in the United States. Communicated to the City of Washington, with the documents in the appendix, at their meeting, Feb. 6, 1824. New Haven: printed for the society, by S. Converse. 1824. 8vo.

Saltonstall, G. Lord's prayer in the language of the **Mohegan** and Pequot Indians, p.54.

Auer (Alois).
[Outside title] *Sprachenhalle*. *N.B. Die erste Abtheilung, das Vater Unser 608 Sprachen und Mundarten, enthalt den Adelung'shen Mithridates sammt 86 von mir beigefugten Vater-Unser-Formeln, in getreuen Abdrücke nach den / Quellen, und zwar in tabellarischer Aufstellung, um alle Mangel und Fehler der Originalien deutlicher zu veranschaulichen, und dadurch die Verbesserung zu erzielen. / Die zweite Abtheilung, das Vater Unser in 206 Sprachen und Mundarten, enthalt die von mir neuerdings gesammelten verbesserten Vater-Unser in den Volkern eigenthümlichen Schriftzugen mit der betreffenden Aussprache und wortlichen Uebersetzung.*

First engraved title: Das / Vater Unser.

Second engraved title: Das / Vater Unser / in mehr als 200 Sprachen und

Mundarten / mit / Originaltypen. portfolio – oblong folio. Wein: 1844-1847]

Outside title reverse a short description 1 sheet, 17 other sheets printed on one side only in portfolio, oblong folio. Part I, dated 1844, has the caption: Das Vater-Unser in mehr als sechshundert Sprachen und Mundarten, typometrische aufgestellt.

Part I contains the Lord's Prayer in **Mohegan** [no. 600].

Balbi (Adrien).
Atlas / ethnographique du globe, / ou/ classification de peuples / anciens et modernes / d'apres leurs langues, / precede / d'un discours sur l'utilite et l'importance de l'etude des langues appiliquee a plusieurs branches des connaissances humaines; d'un apercu / ser les moyens graphiques employes par les differens peuples de la terre ; d'un coup-d'oeil sur l'histoire / de la langue slave, et sur la marche progressive de la civilisation / et de la litterature en Russie, / avec environ sept cents vocabulaires des

princpaux idiomes connus, / et suivi / du tableau physique, moral et politique / des cinq parties du monde, / Dedie a S.M. l'Empereur Alexandre; / par Adrien Balbi / ancien professeur de geographie, de physique et de mathematiques, / membre correspondant de l'Athenee de Trevise, etc., etc. *A Paris, / Chez Rey et Gravier, libraires, Quai des Augustins, No. 55 /*
M.DCC.XXVI [1826]. Imprimie chez Paul Renourard, Rue Garenciere, No.5. F.-S.-G. folio.

Plate xxxiv, "Langues de la region alleghanique et des lacs." Includes Algonquino-**Mohegans**, **Mohegan**-Abenaqui. Observations sur la famille… ou algonquins-**mohegane**, pp. 312-313; **mohegan**-abenaqui, p. 314.

Bastian (Philipp Wilhelm Adolf.)
"Ethnologie und vergleichende Linguistik", In *Zeistschrift fur Ethnologie*, vol. 4 (1872), pp137-162, 211-231, Berlin [n.d.], 8 vo.

Contains examples in, and grammatical comments upon a number of American Languages, among them the **Mohegan** and Massachusetts, pp. 211, 220; the Delaware and the Cree, p.226.

Boudinot, (Rev. Elias).
A / star in the west; / or, / a humble attempt to discover / the long lost / ten tribes of Israel, / preparatory to their return to their beloved city, / Jerusalem. Trenton, NJ: Published by D. Fenton, S. Hutchinson, and J. Dunham. George Sherman, printer. 1816. 8vo.

Chapter III. An inquiry into the language of the American Indians, pp. 89-107, contains a vocabulary of several languages, among them, Mohegan, pp. 102-103.

Brinton (Dr. Daniel Garrison). *Brinton's library of / aboriginal American literature. / Number V. / The Lenape and their / legends; / with the complete text and symbols /of the Walum Olum, / a new translation and inquiry into its authenticity.*D.G. Brinton, Philadelphia, 1885. 12 mo.

Dialects of the Lenape, including a comparative vocabulary of the Unami and Minsi (from Heckwelder), another of the relationships in the Delaware, Minsi and **Mohegan** (from Morgan), and a third of the Delaware "at intervals during 210 years" (from Campanius, 1645; Zeisberger, 1778, and Whipple, 1885), pp. 91-97.

Campbell (John).
"The affiliation of the Algonquin languages." *In Canadian Inst. Proc. New series*, vol. I, pt.1, pp. 15-53, Toronto, 1879. 8mo Issued separately as: *The affiliation of the Algonquin languages*, Montreal, [1879]. 8 mos.

Comparative vocabulary of the Algonquin languages, including Delaware, Narragansett, New England, **Mohican**, Massachusetts, etc.

"Origin of the aborigines of Canada." *In Quebec Lit. and Hist. Soc. Trans. Session 1880-1881*, pp. 61-93, and appendix pp. I-xxxiv, Quebec, 1882, 12mo.Issued separately as *Origin / of the / aborigines of Canada*. / A paper read before the Literary and Historical Society, / Quebec, / by Prof. J. Campbell, M.A. Quebec: / printed at the "Morning Chronicle" office, 1881. 12 mos.

First part of this paper is an endeavor to show a resemblance between various families of the New World and between these and various families of the Old World, and contains words in several Algonquin languages with a comparative vocabulary of Algonquin and Malay-Polynesian languages. Includes **Mohican**, Long Island, Narragansett and Abenaki.

Cass, (Lewis).
1. [Review of] Travels in the central portions of the Mississippi valley by Henry Schoolcraft.
2. [Review of] A vindication of the Rev. Heckewelder's History of the Indian nations by William Rawle. *In North American Review*, vol. 26, pp.357-403, Boston, 1828, 8vo.

Criticisms upon and extracts from Heckewelder (pp. 376-403), including Delaware words and phrases from Heckewelder, with English equivalents, pp. 377-386; verbal adjectives and verbal substantives, in Delaware and English, p.390; **Mohegan** adjectives, p. 391; conjugation of the verb *to be* in Chippewa and English, pp.391-394; Other Chippewa conjugations, pp. 398-400; Delaware names of animals, p. 401.

Catlin (George)
A descriptive catalogue of / Catlin's Indian collection, / containing / portraits, landscapes, costumes, &c., / and / representations of the manners and customs / of the / North American Indians. / Collected and painted entirely by Mr. Catlin during eight years' travel amongst / forty-eight tribes, mostly speaking different languages. / Also / opinions of the press in England, France, and the United States. /London: published by the author, at his Indian collection, No. 6, Waterloo Place, 1848. 8vo.

Proper names with English significations, as under titles above, with the addition of a few names in **Mohegan**.

Caulkins (Frances Manwaring).
History / of New London, / Connecticut. / From the first survey of the coast in 1612, to 1852. New London, published by the author, 1852. 8 vo

A chapter of names, English and aboriginal, pp.118-125, contains a list of geographic names in the Pequot or **Mohegan** territory.

DeForest (John William).
History of the / Indians of Connecticut / from the / earliest known period / to 1850. Published with the Sanction of the Connecticut Historical Society.
Hartford: Wm. Jas. Hamersley, 1851. 8vo.
Hartford: Wm. Jas. Hamersley, 1852. 8vo.
Hartford: Wm. Jas. Hamersley, 1853. 8vo.
Albany: J. Munsell, 82 State Street, 1871. 8vo.

"Language," being general remarks on the Massachusetts, Narragansett, and Pequot languages, and containing the Lord's Prayer in **Mohegan** (from Gov. Saltonstall) and in the Massachusetts (from Eliot's bible), pp. 38-42. Short vocabulary (31 words) of the Massachusetts, Narragansett, **Mohegan**, Pequot, and Naugatuck, appendix p.491.

Drake (Samuel Gardner).
The / book of the Indians / of / North America: / comprising / details in the lives of about five hundred / chiefs and others, / the most distinguished among them. / Also, / a history of their wars; their manners and customs; speeches of / orators, &c., from their first being known to / Europeans to the present time. / Exhibiting also an analysis of the most distinguished authors / who have written on the great question of the / first peopling of America. / [Picture of Indian and six lines quotation.] / Boston: Published by Josiah Drake at the Antiquarian Bookstore, 56 Cornhill, 1833. 8vo.
Boston: O.L. Perkins, 56 Cornhill, and Hilliard Gray & Co. New York: G. & C. & N. Carvill. Philadelphia : Grigg & Elliot, 1834.
Boston : J. Drake, 56 Cornhill, at the Antiquarian Institute. 1836.
Boston: Antiquarian Bookstore, 56 Cornhill, MDCCCXLI [1841].
Boston: Benjamin B. Mussey & Co., MDCCCLI [1851].
Newark: Hurst & Company, publishers, 122 Nassau Street, 1882

Lord's Prayer in the **Muhhekaneew** language (from Edward's), book 2, p. 89; in Wampanoag (from Eliot's bible), book 3, p. 40.

Duponceau (Peter Stephen).
Memoire / sur / le systeme grammatical / des langues / de / quelques nations indiennes de l'Amerique / du nord; / ouvrage qui, a la séance publique annualle / de / l'Institute royal de France, le 2 mai 1835, / a remporte le prix fonde par M. le comte de Volney…
Paris, a la librairie d'A. Pihan de la Forest, rue des Noyers 37. Gide, libraire, rue de Seine s.g. 6 bis. Dentu, libraire au Palais-Royal. 1838. 8vo.

Memoire sur le caractere grammatical des langues de l'Amerique du nord,
Connues sous les noms de Lenni-Lenape, **Mohegan** et Chippaway (chapters v-xx being devoted to the Algonquin), pp. 75-256.

Edwards (Rev. Jonathan).
Observations / on the / language / of the / Muhhekaneew Indians; / In which the language in / North America is shewn; its genius is / grammatically traced : some of its peculiari- / ties and some instances of analogy between / that and the Hebrew are pointed out. / Communicated to the Connecticut Society of arts and sciences, and published at the request of the Society.
New-Haven: Printed by John Meigs, MDCCLXXXVIII [1788] 8vo.
New Haven: Printed by John Meigs, 1787 [*sic*]
London, Reprinted by W. Justins, Shoe-maker Row, Blackfriars, MDCCLXXXVIII [1788]

Extract from the Society's records. Comparative vocabulary of the **Mohegan** and Shawnee (the latter communicated to Edwards by Gen. Parsons), pp.6-7; of the **Mohegan** and Chippawau (the latter from Carver), pp. 7-8. Numerals 1-10 and Lord's Prayer in **Mohegan** and Mohawk, pp.9-10. Grammatical discussion of the **Mohegan**, pp.10-17.

*A / sermon / at the execution of / Moses Paul, an Indian; / Who had been guilty of murder, / Preached at New Haven in America. / By Samson Occom, / A native Indian and Missionary to the Indians, who was in England / in 1776 [sic for 1766], collecting for the Indian Charity Schools. / To which is added / a short account of the / Late spread of the Gospel, / among the Indians. / Also / Observations on the Language of the **Muhhekaneew** Indians :* / communicated to the / Connecticut Society of the arts and sciences, / by Jonathan Edwards, D.D.
New Haven: Printed 1788. 8vo.
London : Reprinted, 1788 and sold by Buckland, Paternoster Row; Dilly Poultry's Otridge, Strand; J. Lepard, No. 91 Newgate street; T. Pitcher, No. 44, Barbican; Brown, on the Tolzey Bristol; Binns at Leeds; and Wolmer, at Exeter. 8vo.
New Haven: Josiah Meigs, 1788. 8vo.
London: reprinted by W. Justins, Shoe-maker Row, Blackfriars, MDCCLXXXIX
[1789]. 8vfo.
New York: printed by M.L. & W.A. Davis, 1801. 12 mos.
(It is possible that all copies of the two English editions of *Observations* as issued were attached to Occum's sermon, but they are now often found apart.)

Extract from the Society's records. Comparative vocabulary of the **Mohegan** and Shawnee (the latter communicated to Edwards by Gen. Parsons), pp.6-7; of the **Mohegan** and Chippawau (the latter from Carver), pp. 7-8. Numerals 1-10 and Lord's Prayer in **Mohegan** and Mohawk, pp.9-10. Grammatical discussion of the **Mohegan**, pp.10-17.

"Doctor Edwards' observations on the Mohegan language." In *Massachusetts Hist. Soc. Coll.* Second series, vol. 10, pp. 81-160, Boston, 1823. 8vo.

Mohegan (from Edwards), p.136; **Mohegan** (from Jenks), p.137. Postscript. Translation of the 19th Psalm into the **Muh-he-con-nuk** language, done at the Cornwall School, under the superintendence of Rev. John Sergeant, Missionary (from Rev. Dr. Morse's Report on Indian affairs), pp. 152-154.

Index of **Mohegan** and other Indian words, explained in Edward's Observations, pp. 155-157.

Eliot (John). *The Indian / Grammar / begun: or, / An essay to bring the Indian Language / into / rules, / for the help of such as desire to learn the same, for / the furtherance of the Gospel among them.* Cambridge: Printed by Marmaduke Johnson, 1666. 4to.

> "The language of which this grammar treats was specially that of the Massachusetts tribes of Indians, dwelling near the sea-coast of the present state of Massachusetts. It was spoken…with some differences of dialect which cannot now be accurately indicated by the Wampanoags of Plymouth colony, the Narraagansetts and Niantics, the islanders of Nope (Martha's Vineyard), the Montauks, &c … It has also called the Nonantum language; but more frequently the Natick tongue, apparently from the accidental circumstance, that Eliot established his first Indian church in the town called Natick which was near Boston and was once the town of greatest note among the Indians in this quarter. "We Massachusetts pronounce the *n*. The Nipmuk Indians pronounce *l*. And the Northern Indians *r*. "

Ettwein (Rev. John).
"Remarks upon the traditions, &c., of the Indians of North America."
In *Pennsylvania Hist. Soc. Bull*. Vol 1, pp.29-44, Philadelphia, 1848. 8vo.

"Of their languages," pp. 39-44, includes "A collection of words" of the Maqua, Delaware, and **Mahican**, pp. 41-44.

Gallatin (Albert).
"A synopsis of the Indian tribes within the United States east of the Rocky Mountains, and in the British and Russian possessions in North America." *In American Antiquarian Soc. Trans. (Archaeologia America)*, vol. 2, pp.1-422, Cambridge, 1838. 8vo.

Comparative vocabulary which includes **Mohegan** (from Jefferson, Heckewelder, Edwards, and Jenks), Long Island (from Jefferson and Wood), Delaware (from Heckewelder and Zeisberger) pp. 305-367.

"Hale's Indians of north-west America and vocabularies of North America." *In American Eth. Soc. Trans*. Vol.2, pp.xxiii130. 8vo

Vocabulary which includes **Mohican** pp. 110-113.

Haines (Elijah Middlebrook). *The American Indian / (h-nish-in-na-ba). /The whole subject Complete in One Volume / Illustrated with Numerous Appropriate Engravings*. /
Chicago: the Mas-sin-na-gan company, 1888. 8vo.

Numerals…**Mohegan**, p. 50, short vocabulary comparison…**Mohegan**, p.476.

Heckewelder (Rev. John Gottlieb Ernestus*)*.
Comparative vocabulary / of / Algonquin Dialects. From Heckewelder's manuscripts /in the collection of the American philosophical society, / Philadelphia. Printed for the "Alcove of American Native Languages" in Wellesley College Library, by E.N. Horsford.
Cambridge: John Wilson and son. University Press, 1887. 4to.

Arranged in eight parallel columns – English, Lenni Lenape, Minsi or Monsey, **Mahicanni**, Natick or Nadik, Chippewe, Shawana, and Nanticok : about a hundred words of each.
The manuscript of this work is in the library of the American Philosophical Society. It is a copy made by Mr. Duponceau, and forms no. XXVII of a collection made by him, of which it occupies pp.114-119.

Vocabulary of the **Mahicanni** language, taken down from the mouth of one of that nation who had been in Connecticut.

Contains about 150 words and is arranged four columns to the page – two in English, two in **Mahicanni**. The manuscript of this work is in the library of the American Philosophical Society. It is a copy made by Mr. Duponceau, and forms no. XV of a collection made by him and recorded in a folio account book, in which it occupies pp.60-61.

Henry (Matthew S.)
Delaware Indian Dictionary. Manuscript, 843 pp. 4to with maps it is divided into three parts – 1 English and Delaware; 2 Delaware and English;

3 Delaware proper names and their translation. Compiled in 1859 and 1860, it includes without analysis or correction, the words in Zeisberger's Spelling Book,

Roger Williams' Key', Campanius' Vocabulary, those in Smith's and Strachey's Virginia, and various Nanticoke, **Mohegan**, Minsi and other vocabularies.

In the library of the American Philosophical Society.

Hodgson (Adam).
Letters / from / North America, / written / During a Tour / In the / United States and Canada. /In two volumes. Vol. I [-II]. London : / Printed for Hurst, Robinson, and co. / and / A. Constable & co. Edinburgh. / 1824. 8mo

Sargeant (J.), Translation of part of the 19th Psalm into the **Muh-he-con-nuk** Language, vol.2, p.413 (The edition published in New York in 1823 does not include this article.)

Holmes, (Dr. Abiel).
[Memoir of the **Moheagan** Indians.] In *Massachusetts Historical Society* Coll. First series, vol. 9, pp.75-99, Boston, 1804. 8vo.

A general discussion of the language of the **Moheagans,** including specimens of the Choctaw, pp.94-95. –Comparative vocabulary of ten words of the Choctaw and the **Moheagan**, p.96. – Numerals 1-10 of the Choctaw and **Moheagan**, p. 97.

- Specimen of the **Moheagan** language, taken at Cambridge in1804, from John
- Kakapo, jun. By William Jenks, consisting of a text with English translation and a vocabulary of 30 words, pp. 98-99.

*A / memoir / of the / **Moheagan** Indians*. / Written in the year M.DCCCIV [1804]. [Boston : 1804.] 8 mo. Text pp. 3-27.

Investigator. The / Investigator: / religious, moral, scientific, &c. [Published monthly]. /January 1845 [-December 1846]. Washington: T. Barnard, printer, cor. 11th St. and Pa. Avenue. 1845 [-1846]. 2 vols. 8mo.

A brief treatise respecting some of our Northwestern tribes of Indians, etc., containing the names by which some tribes are known among themselves, with English significations, names of rivers, lakes, etc., in various Indian languages – no. 1 (January 1845), pp.16-23,-"Philology – Indian Languages," containing a Chippewa vocabulary, comments on various Indian dialects, and an "Illustrative and comparative vocabulary" containing words of the Chippewa, Ottawa, Potawotamie, Menomanie, Sahkey, Delaware, Munsee, and **Mohegan**, no. 9 (September 2845), pp.261-265, and no. 10 (October, 1845), pp.289-293.

Jefferson (Thomas).
[Vocabulary of the **Mohican**, Long Island, and Shawnoe languages.] In Gallatin (A.), Synopsis of Indian tribes in *Am. Ant. Soc. Trans. (Archaeologia Americana*, vol. 2, pp. 305-367, Cambridge, 1836. 8vo.

Jehan (Louis-Francois).
Troisieme et derniere / Encyclopedie / theologique, / ou troisieme et derniere / serie de dictionnaires sur toutes les parties de la science religieuse, / offrant en francais, et par ordre alphabetique, /la plus claire, la plus facile, la plus commode, la plus variee / et plus complete des theologies: / [&c.]. Publiee par M. l'abbe Migne, Tome trente-quatrieme. Dictionnaire de linguistique. Tome unique. S'imprime et se vende chez J.-P. Migne, editeur, aux ateliers catholiques, rue d'Ambroise, 20 au Petit-Montrouge, autrefois Barriere d'enfer de Paris, maintenant dans Paris. 1864. 8mo.

Region Alleghanique et das lacs dans l'Amerique du Nord, col. 242-248, contains a comparative vocabulary of sixteen words and the numerals 1-10, in thirty-five American Indian dialects, including under the division "Famille Lennape," the Sawanou on Shawanoese, Sakis-Ottogamis (Sakis ou Sakewi), Miamis-Illinois (Miami propre), Pampticough, Lennape ou Delaware (Delaware), Minsi, Sakitani, Narraganset, Massachusett ou Natick, **Mohegan** (**Mohegan** propre), Abenaki, Etochemine, Gaspe sien ou Micmak, Algonquino-Chippaways (Chippeway propre ou Ochippewag), Algonquin propre, Knistenaux (Knistenaux propre), and Cree. Lennape, ou Chippaways-Delaware ou Algonquino-**Mohegane**, famille de langues de la region alleghanique, col. 796-824, contains remarks on the dialects of the Sawanou, Saki-Ottogami, Menomene, Miami-Ilinoi, Lennape ou Delaware, Sakikaani, Narragansett, Massachusett ou Natick, Powhattan, **Mohegan**-Abenaqui, Etchemine, Gaspisien ou Micmak, Algonquino-Chippaway, Knistenaux and Skoffie-Sketapushoish, with a few specimens of words, col. 796-807.

Jenks (William).
*Specimen of the **Moheagan** language taken at Cambridge*, February 28, 1804.

In **Holmes (A.)**, "Memoir of the **Moheagans** ", *in Massachusetts Hist. Soc*. Coll. first series, vol. 9, pp. 98-99, Boston, 1804. 8vo.

Jones (Electa F.).
Stockbridge, / past and present; /or records of / an old mission station.
Springfield: Samuel Bowles & company, 1854. 12mo.

"The language of the **Muh-he-ka-ne-ok**" (chiefly from Edwards), pp. 30-37, contains a short comparative vocabulary of the **Muh-he-ka-neew**, Shawanoe, and Chippeway, pp. 31-32; Grammatical forms, p.33; Lord's prayer in the language of the Eastern Indians (from Eliot), p. 36; Lord's prayer in the dialect of the Stockbridge Indians, p. 37.

Kasstigatorskee [Feathered Arrow] (pseudonym).
Examination of an article [by Lewis Case] in the "North American Review" for January, 1826, respecting the Indians of America. [Three lines quotation, **Mohegan** and English.]. In U.S Literart Gazette, vol. 4, pp. 362-374, Boston, 1826. 8mo.

Remarks upon and examples in Cherokee, **Mohegan**, and Delaware.

Lathem (Robert Gorden).
Miscellaneous contributions to the ethnography of North America. In *Philological Soc*. [of London], *Proc*., vol. 2, pp.31-50, [London], 1846. 8vo.
Comparative vocabulary of the Fall Indians (from Umfreville), Ahnenin, and Minetare. p.31.

Table of words showing affinities between the Ahnenin and a number of other American dialects, among them, the following: Sheshatapoosh, Passamaquoddy, Miami, Shawnee, Old Algonquin, Massachusetts, Natchez, Onondagos, Sac and Fox, Abenaki, Illinois, Blackfoot, Narragaansett, **Mohegan**, Montaug, Ojibbeway, Ottawa, and Knistenaux.

Elements / of / comparative philology. / London: Walton and Maberly / Longman, Gree, Longman, Roberts and Green, 1862. 8vo.

Comparative vocabulary of the Minsi, Nantick, and **Mohikan**, pp.451-452.

Lesley (Joseph Peter).
"On the insensible graduation of words". In *American Philosophical Society Proc*, vol. 7, pp.129-155, Philadelphia, 1861. 8mo.

Contains a few words in Penobscot, Souriquois, Delaware, **Mohegan**, and Sankikani.

Long (John). *Voyages and travels / of an / Indian interpreter and trader, / describing / The Manners and Customs / of the / North American Indians ; with / an account of the posts / situated on / the river / Saint Laurence, lake Ontario, &c. / To which is added / a vocabulary / of / The Chippeway Language. / Names of Furs and Skins, in English and French. / A list of words / in the / Iroquois,* ***Mohegan****, Shawanee, and Esquimeaux tongues, / and a table, shewing / The Analogy between the Algonquin and Chippeway Languages.* London : self published; MDCCXCI [1791]. 4to.

Vocabulary of the **Mohegan** (46 words) pp. 209-210.
Also published in Hamburg, 1791. 8vo. [Hamburg, 1792 and Paris, 1794 have no linguistic materials.

Comparative vocabulary of the **Moheganisch** and Schawanesisch, pp. 284-285;

Comparative vocabulary of the **Moheganisch**, Algonkinsch, and Chippewaisch, pp. 285-286.

Macauley (James). *The / natural, statistical and civil / history / of the / state of New-York*. In three volumes. New York : published by Gould & Banks, / and by William Gould & co. / Albany, / 1829. / A.S. Gould, Printer. 8vo.

Tabular view of the tribes and the clans of the **Mo-hea-kan-neews**, with their places of residence, vol.2, pp. 162-169. – Of the several tribes of Indians on Long Island (from Silas Wood's Sketch of the first settlement of Long Island), vol. 2, pp. 252-275, contains remarks on a number of languages, among them the **Moheakanneew**, Montauk, Massachusetts, and Narragansett. – Vocabulary of the Montauk language (from John Gardiner), pp.263-264. – Comparative vocabulary of the Massachusetts, Narragansett, and Montauk, pp. 264-265.

McCulloh (James Haines). *Researches, / philosophical and antiquarian, / concerning the / aboriginal history of America*. Baltimore : / published by Fielding Lucas, jr., 1829. 8mo. The 1816 and 1817 editions of this work do not contain linguistic material.

On the languages of the American Indians, pp. 33-66, is a general discussion on the subject, with examples and conjunctions, mainly of the Algonquian, in the Massachusetts (from Eliot), **Mohegan** (from Edwards), Delaware (from Zeisberger); and giving the views of Heckewelder, Duponceau, Barton, and others.

McIntosh (Rev. John).
The / discovery of America / by Christopher Columbus; and the / origin / of the / North American Indians. Toronto : W.J. Coates, King street, 1836. 8vo

Particularities of the Indian languages [Algonquian, Huron, Sioux], with general remarks only, pp. 151-152.

The / origin / of the / North American Indians; / with a / faithful description of their manners and customs, both civil, / and military, their religions, languages, dress, and / ornaments. / To which / is prefixed a brief view oe [sic] the creation of the world, the situation / of the garden of Eden, the antediluvians, the foundation of / nations by the posterity of Noah, the progenitors / of the N. Americans and the discovery / of the new world by Columbus. Concluding with a copious selection of Indian speeches, the antiquities / of America, the civilization of the Mexicans, and some / final observations on the origin of the / Indians. New York : published by Nafis & Cornish, 278 Pearl street. 1843. 8vo…includes a few words of the Lenni Lenape or Delawares, Algonquin and Chippewas, Kickapoos, Narragansetts, Pottawatameh, Miamis, Indians of Pennsylvania, Plankashaws, Acadians, Indians of Penobscot and St. Johns, Shawnees, **Macicanni**, and Indians of New England, pp. 100-103.

The / Origin / of the / North American Indians; / with a / faithful description of their manners and customs, both civil;, / and military, their religions, languages, dress, and / ornaments: / including various specimens of Indian eloquence, as well as histor / ical and biographical sketches of almost all the / distinguished nations and celebrated / warriors, statesmen and orators, / among the / Indians of North America. (New edition, improved and enlarged.)

1. New York : Published by Nafis & Cornish, 278 Pearl street. Philadelphia – John B. Perry, 1844. 12 mo.
2. New York : Cornish, Lamport & Co., publishers. No. 8 Park Place, 1849. 8vo.
3. New York : Sheldon, Blakeman and Co., No. 115 Nassau Street, 1857. 8 vo.

Linguistics pp.93-98, 100-103 – same information as previous title.

Merian (Baron Andreas Adolf von).
Synglosse / oder / Grundsatze der Sprachforshung. Von / Junius Faber[pseudnym of baron de Merion]. Karlsruhe. Bei Gottlieb Braun, Ostern, 1826. 8 vo.

Drittertheil, pp. 41-160, contains comparative vocabularies in European, Asiatic, African, American, and Oceanic languages, classified according to their roots, and including words in Algonkin, pp. 56, 66, 68, 74, 96, 131, 142; Delaware, pp. 102, 147; Neu-England, p. 115; Suriquois, p.123; Sankikau, p. 128; Miamis, p. 142; and **Mahikander**, p. 147.

Principes / de / l'etude comparative / des langues, // parle baron de Merian. Suivis / d'observations / sur les racines des langues semitiques; par M. Klaproth. Paris : Schubert et Heideloff, editeurs, que Malaquais, no. I., Leipzig. Ponthieu, Michelssen et Cie. 1828. 8 vo.

…**Mahikander**, p. 147; Comparison des langues americaines, avec les idiomes de l'ancien continent, pp. 185-206, contains words in Algonkin, Delaware, Nouvelle Angleterre and Tchippewey.

Morgan (Lewis Henry).
Smithsonian Contributions to Knowledge. / 218 / Systems / of / consanguinity and affinity / of the / human family. Washington City : published by the Smithsonian institution, 1871. 4to. [Also forms vol. 17 of Smithsonian Contributions to knowledge – such issues have no cover title, but the general title of the series and 6 other prel. ll. Preceding the inside title.]

System of consanguinity and affinity of the Ganowanian family, pp. 291-382,

includes the following…**Mohegan**, lines p. 61.

Ancient society / or / researches in the lines of human progress / from savagery, through barbarism / to civilization. New York : Henry Holt and company, 1877. 8 mo.

…Phratries of the Mohegan, p. 174.

Pritchard (James Cowles).

Researches / into the / physical history / of / Mankind. Second edition. In two volumes. Vol. I [-II]. London : printed for John and Arthur Arch, Cornhill, 1826. 8 mo.

First edition (1813) contains no linguistics) Vol. 2, pp. 350-355, contains comparative vocabularies of American and Asiatic languages (pp. 353-354), including words in Penobscot, Illinois, Delaware, Acadian, New England, and **Mahican**. Pages 414-424 of the same volume treat of the Algonquin race, and contain general remarks on the classification and languages of the different branches.

Researches / into the / physical history / of / Mankind. London : Sherwood, Gilbert, and Piper, Pasternoster row; and J. and A. Arch, Cornhill. 1836[-1847]. 8 mo.

Vol. 5. History of the Algonquin race: the Knistineaux, the Algonquins proper

Of the eastern or Atlantic tribes; the New England tribes, the Lenni-Lenape or Delaware Indians…pp.393-394.

Pyrlaeus (Rev. John Christopher).

[Hymns in the **Mohican** language, 1745]. *The Moravian Mission Bethlehem diary for the year 1745*, and under the date of September 18th it is recorded that the first translation of hymns (two) into **Mohican**, made by Rev. Pyrlaeus 'appeared today.' They were revised by a convert, John, a Mohican from Shecomeco. Prior to this date, Pyrlaeus had studied Mohican as well as Mohawk.

*Probe zu einum Gesangbuch der Nationen der **Mahikander**, Delawares und echtliche* Verse in der Sprache der 6 Nationen. 1746. (Ms in Unitats-Bibliothek, Herrnhut, Saxony.)

[Quinney (John)].

The / Assembly's / Catechism. Printed at Stockbridge, Massachusetts, by Loring Andrews, 1795. . 8 vo.

With the exception of the headings in English, the foregoing is printed entirely in the **Mohegan** or Stockbridge Indian language. Copy in the Lennox Massachusetts Historical Society. The edition was printed for the use of the **Moheakunnuk** Indians after they had removed from Stockbridge, Mass. to New Stockbridge, NY, probably at the insistence of Rev. John Sergeant.

Quinney, (J.) and Aupaumet (Capt. Hendrick)

The assembly's / shorter catechism. [Stockbridge ? 1818?] 18 mo.

Translation made by John Quinney and Capt. Hendrick, Little else published in the **Moheakunnuk** language.

Ruttenber, (Edward Manning).

History / of the / Indian Tribes of Hudson's River; / their / origin, manners and customs; tribal / and sub-tribal organizations; / wars, treaties, etc., etc. Albany, NY : J. Munsell, 82 State street, 1872. 8 mo.

Apendix II, Language, pp. 333-360, contains a general account, with specimens, of the several Algonquin dialects; a grammar of the Algonquin language (from Schoolcraft); and, on page 360, a comparative vocabulary of 24 words (from Schoolcraft and Gallatin) of the Old Algonquin, Long Island, Massachusetts, **Mahican**, Delaware, Minsi, Shawanoes, Chippeway, and Mohawk.

Saltonstall (Gov. Gurdon).

"The Lord's prayer in the language of the **Moheegan** and Pequot Indians living in the colony of Connecticut in New-England procured by the Hon. Gov. Saltonstall, at New London, February 1721." *In American Society, First Ann. Rept*., p. 54, New Haven, 1824. 8 vo.

Accompanied by an interlinear English translation.

Sanford (Ezekiel).
A / history / of / the United States / before the revolution: / with / some / account / of / The Aborigines. Philadelphia : published by Anthony Finley; William Brown, Printer. 1819. 8 mo.

Comparative vocabulary of the Charibbee, Creek and **Mohegan** and northern languages, with the Hebrew (from Boudinot) pp. xxviii-xxx.

Schmick (Johannes Jac).
*Miscellanea linguae nationis Indicae **Mahikan** dictae, curea suscepta* a Joh. Jac. Schmick. [n.d. – ca. 1765] Manuscript, 2 volumes sm. 8 vo., formerly in the library of the American Philosophical Society, Philadelphia. May be back in Moravian archives at Bethlehem.

Schomburgk (Sir Richard H.).
"A vocabulary of the Maiangkong language [South America]". *In Philological Soc*. [of London] *Proc*. Vol. 4, pp. 217-222, 1850. 8 vo.

Contains the word for sun in Shawano, Kikkapoo, Minsi, New Sweden, Algonkin, **Mohican**, Chippeway, and Mississaugi.

Schoolcraft (Henry Rowe).
A bibliographical catalog of books, translations of the scriptures, and other publications in the Indian tongues of the United States, with brief critical notices. Washington : C. Alexander, printer, 1849. 8 vo.…**Mohegan,** no. 63, p. 16.

Historical and statistical information, respecting the history, condition and prospects of the Indian tribes of the United States: collected and prepared under the direction of the bureau of Indian affairs, per act of Congress of March 3rd, 1847 [Illustrated by Seth Eastman. Published by the Authority of Congress. 6 volumes. Philadelphia : Lippincott, Grambo & company, (successors to Grigg, Elliot & co.), 1851[-1857].

The Lord's prayer in Indian (vol. 5, pp. 590-592), includes a version in Massachusetts (from Elliot, 1685). And in **Mohegan** (from Edwards), with interlinear translation p. 591…grammatic comments with examples of the Mahican language, pp. 618-620, includes brief comments and a comparative vocabulary of 25 words of Chippewa and Mohegan.

"Utterances of Alalcol". In *The Knickerbocker* or *New York Monthly Magazine*, vol. 57, pp. 539-542, vol. 58, pp. 109-114, New York, 1861, 8mo. Aboriginal nomenclature, vol. 58, pp.109-112, contains names of places in the State of New York derived from the Mohegan and the other Algonquian languages.

Sener (Samuel Miller).

In the *Harrisburg Telegraph*, "Notes and Queries", no ccxxxv, Harrisburg, Pa., June 29, 1889. The name for elk, dog, etc. in a number of American languages (compiled from Barton's Philadelphia Medical and Physical Journal) among them Delaware, Naticoke, Moonsee, **Mohegan**, etc.

Sergeant (Rev. John), *the elder*.

A Morning Prayer. Boston, 174?. No title page, heading only; text (with the exceptions of the headings in English, entirely in the **Mohegan** or Stockbridge Indian language) pp. 1-15.

A Prayer before Sermon. Boston, 174? No title page, , heading only; text (with the exceptions of the headings in English, entirely in the **Mohegan** or Stockbridge Indian language) pp. 1-23.

These 2 tracts in the **Mohegan** or **Moheakunnuck** language were issued together, stitched in paper covers without title or colophon.

Sergeant (Rev. John), *the younger*.

Translation of the 19th Psalm [14 verses, complete] into the Muhheconnuck language done at the Cornwall school. Mohegan and English in Parallel columns. It is stated that the translation was made by John Hicks, Stockbridge tribe, and a pupil at the Foreign Mission School, Cornwall, CT.

Smith (Philip H.).

General history / of / Dutchess county, / from / 1609 to 1876, inclusive. / Illustrated with / numerous wood-cuts, map and full- / page engravings. Pawling, NY : published by the author. 1877. 8vo. A few Mohegan or Mincee terms, pp. 21-22.

Street (Alfren Billings).

The / Indian / pass. New York : Hurd and Houghton, publishers, Cambridge: Riverside Press, 1869.12mo. Names of places in and about the Adirondack Mountains in the **Mohegan** and other languages, with English significations, pp. xiv-xvii.

Trumbull (Dr. James Hammond).

"On some Mistaken Notions of Algokin Grammar, and Mistranslations from Eliot's Bible, &c.." In *American Philological Assn. Trans*. 1869-'70. pp. 105-123, Hartford, 1871. 8vo. Comments upon and examples in Massachusetts, Delaware, Cree, Chippeway,

Mohegan, Old Abnaki, Old Passamaquoddy, Mareschit, Narragansett, Northern Algonkin and Micmac, with references to Eliot, Gallatin, Duponceau, Pickering, Zeisberger, Heckewelder, Edwards, Roger Williams, Wm. Wood, Howse, Cass, Schoolcraft, and Vater.

"Notes on Forty Versions of the Lord's Prayer in Algonkin Languages." In *Am. Philological Ass. Trans*., 1872. Pp. 113-218, Hartford : 1873.

Issued separately as follows: *Notes on / forty Algonkin versions / of the lord's prayer*. From the Transactions of the Am. Philological Association, 1872. Hartford 1873.

Mohegan, of Stockbridge, Mass. (from Edwards' Observations) p.37.

Moheagan of Stockbridge, Mass. (from [Quinney's] Assemblys catechism, 1795), pp. 38-42.

Connecticut, **Pequot-Mohegan**? (from Saltonstall in Morse's report), pp. 36-37.

Connecticut, Niantic? (from Mayhew's manuscript), pp. 34-36.

"Words derived from Indian Languages of America." In *Am. Philological Ass. Trans*., 1872, pp. 19-32, Hartford, 1873. 8vo. Examples in a number of Algonkin languages – Massachusetts, Abnaki, Chippewa, **Pequot**, Virginian, etc.

"Nomenclature of American game birds." In *American Sportsman*, vol. 3, p. 227, West Meriden, Conn. 1874. Folio.

Names of a few birds in Chippewa, Cree, Narragansett, Massachusetts, and Pequot.

"On numerals in American Indian Languages and the Indian Mode of Counting." In *Am. Philological Ass. Trans.*, 1874, pp. 41-76, Hartford : 1875. 8mo.

Examples in Massachusetts, Micmac, Chippeway, Abnaki, Delaware, Blackfoot, Cree, Sheyenne, Arapoho, Sauki, Narragaaansett, Miami, Montauk, **Mohegan**, Shawano, Nipissing, and Atsina.

"The Algonkin Verb." In *Am. Philological Ass. Trans*., 1876, pp. 28-29, Hartford : 1876. 8vo.

Many examples, Conjugations, etc. in Nipissing Algonkin, eastern and western Cree, Chippeway, Abnaki, Illinois, Massachusetts, Quinnipiac [or Quiripi], **Muhhekaneew**, Blackfoot, Ottawa, Delaware, Miami, Narragansett, etc.

Indian names / of places, etc., in and on the borders of / Connecticut: with interpretations of some of them. Hartford : 1881. 8mo.

Vater (Dr. Johann Severin).

Untersuchungen / über / Amerika's Bevölkerung / aus dem / alten Kontinente / dem Herrn Kammerherrn / Alexander von Humboldtr / gewidmet / von / Johann Severin Vater. Leipzig, bei Friedrich Christian Wilhelm Vogel, 1810. 8vo. pp. 47-55, contains examples in Pensylvan., Pottawatan, Penobscot,

Chippeway, Algonkin,, Illinois, Delaware, Piankashaww, Acadian, Neu-England, **Mahicann**, Minsi…; pp. 170-174, contains examples in **Mahicanni** and Miami.

Literatur / der / Grammatiken, Lexika / und / Wortersammlungen / aller Sprachen der Erde / von Johann Severin Vater. Zweite, vollig umgearbeitete Augsabe von. B. Julg. Berlin, 1847.

List of works in **Mohegan** (**Mahikans** oder **Mahikanders**), pp. 255, 256, 520.

Linguarum totius orbis / Index / alphabeticus, / quarum / Grammaticae, Lexica, / collectiones vocabulorum / recensentur, / patria signficatur, historia adumbratur / a Joanne Severino Vatero. Berlini : In officina libraria Fr. Nicolai. MDCCCXV [1815].

Notices of works in.. **Mohegan**, **Muhhekanew**, pp. 155-156.

Williamson (William Durkee).

The / history / of the / state of Maine; / from / its first Discovery, A.D. 1820, inclusive. In two volumes. Hallowell : Glazier, Masters & co., 1832. Second imprint, Hallowell: Glazier, Masters, & Smith, 1939.

Chapter XVII, The Aborigines, etc. (vol. 1, pp.453-462), contains an account of the **Mohegans** and **Algonquins**; Indian language and intercourse; thirty tribes in New England; their names; four dialects in New England: 1st, the **Mohegan**,…-Chapter XIX, the persons of the natives (pp. 484-514) contains an account of the language; short comparative vocabulary in **Mohegan**, Openango, Tarratine, Algonquin, Delaware, Mickmac, and Virginian, pp. 512-513; numerals 1-1000 in English, Tarratine, **Mohegan**, and Virginian, p.512.

Algonquian Languages Sources

An exceptionally large number of people have recorded information on the numerous languages belonging to the Algonquian language family since first European contact in the sixteenth century. An item-by-item listing of unpublished manuscripts and published papers and books if even feasible would fill over a thousand pages. In fact, the number of unpublished manuscripts is so large that no one has prepared a definitive list for any one, much less all of the languages. The general consensus among individuals who have searched for such manuscripts is that there remain many more in archives that have yet to be discovered. For these reasons, the following list provides citation primarily of existing bibliographies and Internet guides to archival collections.

I. Primary Archival Sources (Containing Original Manuscripts) with Holdings on Several Algonquian Languages

A. National Anthropological Archives, Smithsonian Institution, Suitland, Maryland

The NAA contains an extremely large number of manuscripts of vocabulary and texts from the Algonquian languages, including materials in Abenaki, Algonquin, Arapaho, Atsina, Blackfoot, Cheyenne, Cree, Delaware, Fox, Illinois, Kickapoo, Mahican, Malecite, Menominee, Micmac, Montagnais, Ojibwa, Passamaquoddy, Penobscot, Sauk, Shawnee, and Wawenock. The material is so extensive that it is not feasible to list every manuscript here. Instead, the researcher is referred to the National Anthropological Archives' on-line guide to its collections at www.siris.si.edu. The collection includes original field notes by such researchers as Albert S. Gatschet, John P. Harrington, Alfred Kroeber, James Mooney, Frank G. Speck, and Truman Michelson.

B. Library, American Philosophical Society, Philadelphia, Pennsylvania

The Library of the American Philosophical Society contains an extremely large number of manuscripts of vocabulary and texts from most of the major and minor Algonquian languages (i.e. Abenaki, Algonquin, Arapaho, Blackfoot, Cheyenne, Cree, Delaware, Fox, Illinois, Kickapoo, Mahican, Malecite, Miami, Micmac, Mohegan, Montagnais, Nanticoke, Ojibwa, Ottawa, Penobscot, Potawatomi, Schaghticoke, Shawnee, Unquachog, Wawenock). The material is so extensive that it is not feasible to list every manuscript here. Instead, the researcher is referred to the Library's on-line guides to its collections. The guide located at www.amphilsoc.org/library/guides/indians covers manuscripts deposited in the Library

prior to 1982; for manuscripts deposited in the Library after 1982, the researcher should use the guide located at www.amphilsoc.org/library/mole/. The collection includes original field notes by such researchers as Leonard Bloomfield, Peter Duponceau, John Heckewelder, Charles Hockett, Thomas Jefferson, Edward Sapir, Frank T. Siebert, Frank G. Speck, Morris Swadesh, Paul Voorhis, and David Zeisberger.

C. New York Historical Society, New York City, New York

The Society's Library holds the original language field notes and index cards for Albert Gallatin's *Synopsis of American Indian Tribes West of the Rockies*, which includes linguistic data on most of the Algonquian languages.

D. New York State Library and Archives, Albany, New York

The New York State Library and Archives contains a vast collection of manuscripts pertaining to the early Dutch settlement of New York that include personal and place names as well as incidental vocabulary from the Delaware, Mahican and Wappinger languages. The collection is so large that it is not feasible to list all the manuscripts here. Instead, the researcher is referred to the Library's on-line guide at www.archives.nysed.gov/a/researchroom/index.shtml. At the site of the guide, one should click on "Library/Manuscripts and Special Collections and Archive Collections".

E. Canadian Museum of Civilization, Library and Archives, Hull, Ontario

The Canadian Museum of Civilization holds manuscripts by a number of researchers of the Algonquian languages including, for example, Gordon Day's research on the Abenaki language. At the present time, the on-line guide to the archival collection at http://geoweb.civilisation.ca:8001/ is not in service.

F. Beinecke Library, Yale University, New Haven, Connecticut

Holds early manuscripts by Ezra Stiles and John Noyes, among others, containing vocabulary and personal and place names from the Algonquian languages of Connecticut (i.e. Mohegan, Naugatuck, Niantick, Pequennock, Pequot, and Quiripi).

G. North Carolina State Library and Archives, Raleigh, N.C.

Contains early papers of the North Carolina colonial government and other colonial documents that contain some coastal Algonquian (i.e. Chowan, Machapunga, Pamlico) personal and place names.

H. Archives du Séminaire de Québec, Université Laval, Montréal, Québec

Contains original seventeenth and eighteenth century manuscripts in the Abenaki and other Algonquian languages.

I. Séminaire de Montréal, Les Prêtres de Saint-Sulpices, Montréal, Québec

Contains original seventeenth and eighteenth century manuscripts in Algonquin, Nipissing, and other Algonquian Languages.

J. Archives de l'Archevêché, Québec

Contains original seventeenth and eighteenth century manuscripts in Abenaki and Algonquin.

K. Archives of St. Mary's College, Montreal, Quebec

Contains original manuscripts in Algonquin and other Algonquian languages.

L. Archives de Pères Jésuites de la Fontaine, St. Jérôme, Québec

Contains original manuscripts in Illinois, Ojibwa, Ottawa and other Algonquian languages.

M. Library of McGill University, Montreal, Quebec

Contains original manuscripts in Ottawa and other Algonquian languages.

N. Watkinson Library of Trinity College, Hartford, Connecticut
Contains the manuscript of an eighteenth-century Illinois dictionary by Jacques Gravier, SJ and other Algonquian languages.

O. John Carter Brown Library, Brown University, Providence, Rhode Island
Contains the manuscript of an eighteenth-century Illinois dictionary by Jean-Baptiste LaBoullenger.

P. South Carolina Historical Society, Charleston, South Carolina
Contains the field notes from the research of Wesley D. (White) Taukchirary 's field notes in the archives of North and South Carolina pertaining to indigenous tribes including the coastal Algonquians (i.e. Chowan, Machapunga, Pamlico, Roanoke).

Q. Mashantucket Pequot Museum and Research Center, Mashantucket, Connecticut
Contains original manuscripts, rare books, and copies of manuscripts in other archival sources pertaining on various Algonquian languages, in particular Massachuset, Mohegan, Pequot, Quiripi and other Southern New England languages.

R. Other Sectarian Archives
Various religious groups including the Society of Friends (Quakers), the United Brethern (Moravians), the United Methodists, the New York Missionary Society (Baptists), Presbyterians, and several Catholic orders (Jesuits, Sulpicians, Recollets, Franciscans, Dominicans) have missionized Algonquian-speaking communities over the past several centuries and prepared prayers and other spiritual materials in the languages of the communities. For the most part, the holdings in the archives of these religious groups are only poorly known and merit further investigation. The location of many of these archives may be found using an Internet search engine (e.g. Google) by typing in the name of the religious group followed by the word 'archives'.

I. Public and University Libraries, Local and Provincial/State Historical Societies
Many public libraries, university libraries, and local and provincial/state historical societies in the areas currently and historically occupied by Algonquian-speaking communities – i.e. the Canadian provinces of Alberta, Manitoba, New Brunswick, Ontario, and Quebec, and the U.S. states of Connecticut, Delaware, Idaho, Illinois, Indiana, Maine, Maryland, Massachusetts, Michigan, Minnisota, Missouri, Montana, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, Vermont, Virginia, Wisconsin – contain original manuscripts and rare books in Iroquoian languages and manuscripts in which occasional Iroquoian personal and place names or isolated vocabulary appear. Many of these materials are listed in the published and Internet bibliographies cited in II and III, below. However, the researcher may wish to contact these archival sources directly, since they may contain uncatalogued materials.

II. Published Bibliographies of Algonquian Language Materials

1. Pilling, James Constantine. 1891. *Bibliography of the Algonquian Languages.* Bureau of American Ethnology Bulletin 13. Washington, D.C.: GPO. (Also available in reprint from AMS Press, New York.)

2. Banks, Joyce. 1985. *Books in Native Languages in the Rare Book Collection of the National Library of Canada*. Ottawa: National Library of Canada.

3. Hanzeli, Victor E. 1969. *Missionary Activity in New France: A Study of Seventeenth- and Eighteenth Century Manuscripts in American Indian Languages*. The Hague: Mouton. (Lists the major seventeenth and eighteenth century manuscripts in Algonquian, Montagnais, Nipissing, and Ottawa, and their archival locations.)

4. Kruse, Robert. 1991. *The Henry Rowe Schoolcraft Collection: A Catalogue of Books in Native American Languages in the Library of the Boston Athenaeum*. MS. Boston: The Boston Athenaeum.

5. Manitoba Education and Training. n.d. *An Annotated Bibliography of Aboriginal Language Resources in Manitoba*. (www.edu.gov.mb.ca/ks4/abedu/abdocs/_annotated_bib.pdf) (Provides information on Cree, Mitchif, Oji-Cree, and Ojibwa language resources in the Province of Manitoba).

6. Pentland, David H. and H. Christoph Wolfart 1982. *Bibliography of Algonquian Linguistics*. Winnipeg: University of Manitoba Press.

7. Rudes, Blair A. and David J. Costa, eds. 2003. *Essays in Algonquian, Catawban and Siouan Linguistics in Memory of Frank T. Siebert, Jr.* Memoir 16. Winnipeg, Manitoba: Algonquian and Iroquoian Linguistics. (The references section provides a reasonably full, though far from exhaustive listing of major published and manuscript works in the Algonquian languages intermingled with references to works on Catawban and Siouan languages and linguistics.)

8. Wolfart, H. Christoph. 1984. *Essays in Algonquian Bibliography in Honour of V.M. Dechene*. Memoir 1. Winnipeg, Manitoba: Algonquian and Iroquoian Linguistics.

III. Internet Resources for Information on Particular Algonquian

A. Native American Language Net

A useful means for locating published materials and language resources developed by contemporary tribal and non-tribal language revitalization and instruction programs is the website of Native American Language Net (www.native-languages.org). An index to information on specific languages is provided on the webpage or one may go directly to the page that discusses a particular language by typing in www.native-languages.org/[LANGUAGE NAME].htm (for example, to go to the page on Abenaki language resources, type in www.native-languages.org/abenaki.htm.

B. Society for the Study of the Indigenous Languages of the Americas (SSILA)

SSILA (www.ssila.org) provides contact information for individual linguists who are working with particular Algonquian languages is available through the "Directory". Links to other resources on Algonquian languages may also be found by clicking on "Journal Contents", "Learning Aids" and "Theses and Dissertations".

Catawba Language Sources

I. Primary Archival Sources (Containing Original Manuscripts)

A. Library, American Philosophical Society, Philadelphia, Pennsylvania

1. Speck, Frank G. 1927-1946. Catawba Field Notes. Speck Collection. Library of the American Philosophical Society. Philadelphia.
2. Swadesh, Morris. 1937. Catawba Field Notebook. Ms. 551 in Freeman and Smith, 1966. Philadelphia: American Philosophical Society.
3. McDavid, Raven. 1941. Catawba Field Note Books. MS. Philadelphia, Penn.: American Philosophical Society.
4. Siebert, Frank T., Jr. 1941-1952. Catawba Field Notes and Related Manuscripts. Mss. Philadelphia, Penn.: American Philosophical Society.

B. Library, Queens College, Charlotte, North Carolina

1. Pickens, Alexander. L. c. 1920-1957. Catawba Field Notes. Library, Queens College, Charlotte, N.C,

C. National Anthropological Archives, Smithsonian Institution, Suitland, Maryland

1. Gatschet, Albert S. 1881. Catawba Field Notebook. National Anthropological Archives BAE Ms. No. 1410. Washington, DC: Smithsonian Institution.
2. Michelson, Truman. 1913. Catawba Field Notes. National Anthropological Archives BAE Ms. 2714b.

Washington, D.C.: Smithsonian Institution.
3. Speck, Frank G. 1921-1928. Catawba Texts. National Anthropological Archives BAE Ms. 1777. Washington, D.C.: Smithsonian Institution.
4. Swanton, John R. 1918. Catawba Field Notes. National Anthropological Archives BAE Ms. 4278. Washington, D.C.: Smithsonian Institution.

D. Private Collections

Sturtevant, William C. 1957. Catawba Field Notebooks, Recordings, and Files Slips. Washington, DC: Author.

Taukchiray (White), Wes. 1948-59. Catawba Notes. Pembroke, N.C.: Author.

II. Secondary Archival Sources (Containing Copies of Original Manuscripts)

Archives of the Catawba Indian Nation, Catawba Cultural Center, Catawba Indian Nation, Rock Hill, South Carolina

III. Published Listing of Manuscripts and Sources

Pilling, James Constantine.1887. Bibliography of the Siouan Languages. Bureau of American Ethnology Bulletin 1, part 2. Washington, D.C.: GPO. (Also available in reprint from AMS Press, New York.)

IV. Unpublished Listing of Manuscript Sources

Sturtevant, William C. 1957-1958. Catawba – History and Bibliography of Linguistics. Papers of Williams C. Sturtevant. National Anthropological Archives, MSS. Suitland, MD.

V. Published Sources of Original Data

Barton, Benjamin Smith. 1798. *New Views of the Origin of the Tribes and Nations of America.* 2nd Edition. Philadelphia: John Bioren.

Chamberlain, A. S. 1888. *The Catawba Language*. Toronto: Imrie and Graham.

Gallatin, Albert. 1836. *A Synopsis of the Indian Tribes within the United States East of the Rocky Mountains, and in the British and Russian Possessions in North America. Arcchaeologia Americana, Transactions and Collections of the American Antiquarian Society II.* Worchester, Mass.

Gatschet, Albert S. 1900. Grammatic Sketch of the Catawba Language. *American Anthropologist* 2: 527-549.

Gatschet, Albert S. 1902. Onomatology of the Catawba River Basin. *American Anthropologist* 4:53-56.

Harrington, Mark Raymond. 1908. Catawba Potters and Their Work. *American Anthropologist* 10:399-407.

Lieber, Oscar M. 1858. Vocabulary of the Catawba Language, with Some Remarks on Its Grammar, Construction and Pronunciation. *Collections of the Historical Society of South Carolina* 2: 327-342.

Matthews, G. Hubert and Red Thunder Cloud. 1967. Catawba Texts. *International Journal of American Linguistics* 33: 7-24.

Mills, Robert. 1826. *Statistics of South Carolina: A View of Its Natural, Civil, and Military History, General and Particular*. Charleston, S.C.: Hurlbut and Lloyd.

Mooney, James. 1894. *Siouan Tribes of the East*. Bureau of American Ethnology Bulletin 22. Washington, D.C.: Government Printing Office.

Rudes, Blair A. 2000. Resurrecting Coastal Catawban: the Reconstructed Phonology and Morphology of Woccon. *Southern Journal of Linguistics* 24.2:228-244.

Rudes, Blair A. 2003. Catawba Phonemes. In: Blair A. Rudes and David C. Costa, eds. *Essays in Algonquian, Catawban and Siouan Linguistics in Memory of Frank T. Siebert, Jr.*, pp. 217-254. Memoir 16. Winnipeg: Algonquian and Iroquoian Linguistics.

Speck, Frank G. 1913. Some Catawba Texts and Folk-lore. *Journal of American Folklore* 26.102:319-330.

Speck, Frank G. 1928. Recording the Catawba Language. *El Palacio* 24.16:307-308.

Speck, Frank G. 1934. *Catawba Texts*. Columbia University Contributions to Anthropology No. 24. New York: Columbia University. (Reprinted: AMS Press, New York, 1969.)

Speck, Frank G. 1935. Siouan Tribes of the Carolinas, As Known from Catawba, Tutelo, and Documentary Sources. *American Anthropologist* 37:201-225.

Speck, Frank G. 1937. Catawba Medicines and Curative Practices. *Publications of the Philadelphia Anthropological Society* 1:179-197.

Speck, Frank G. 1938a. The Question of Matrilineal Descent in the Southeastern Siouan Area. *American Anthropologist* 40.2:198-204.

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Speck, Frank G. 1946a. Catawba Text. *International Journal of American Linguistics* 12.2:64-65.

Speck, Frank G. 1946b. *Catawba Hunting, Trapping, and Fishing*. Joint Publications, Museum of the University of Pennsylvania and the Philadelphia Anthropological Society no. 2. Philadelphia.

Speck, Frank G. 1946c. Ethnoherpatology of the Catawba and Cherokee Indians. *Journal of the Washington Academy of Sciences* 36.10:249-258.

Speck, Frank G. and C.E. Schaeffer. 1942. Catawba Kinship and Social Organization with a Resume of Tutelo Kinship Terms. *American Anthropologist* 44: 555-575.

Speck, Frank G. and L. G. Carr. 1947. Catawba Folk Tales from Chief Sam Blue. *Journal of American Folklore* 60:78-84.

Siebert, Frank T., Jr. 1945. Linguistic Classification of Catawba: Parts I and II. *International Journal of American Linguistics* 11:100-104; 211-218.

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Young, Martha and Frank T. Siebert, Jr. 2003. Catawba Onomastics. In: Blair A. Rudes and David C. Costa, eds. *Essays in Algonquian, Catawban and Siouan Linguistics in Memory of Frank T. Siebert, Jr.*, pp. 271-274. Memoir 16. Winnipeg: Algonquian and Iroquoian Linguistics.

Iroquoian Languages Sources

An exceptional large number of people have recorded information on the Iroquoian languages since first European contact in the sixteenth century. An item-by-item listing of unpublished manuscripts and published papers and books if even feasible would fill over a thousand pages. In fact, the number of unpublished manuscripts is so large that no one has prepared a definitive list for any one, much less all of the languages. The general consensus among individuals who have searched for such manuscripts is that there remain many more in archives that have yet to be discovered. For these reasons, the following list provides citation primarily of existing bibliographies and Internet guides to archival collections.

I. Primary Archival Sources (Containing Original Manuscripts) with Holdings on Several Iroquoian Languages

A. National Anthropological Archives, Smithsonian Institution, Suitland, Maryland

The NAA contains an extremely large number of manuscripts of vocabulary and texts from the Iroquoian languages, in particular Cherokee, Huron-Wyandot, Mohawk, and Tuscarora. The material is so extensive that it is not feasible to list every manuscript here. Instead, the researcher is referred to the National Anthropological Archives' on-line guide to its collections at www.siris.si.edu. The collection includes original field notes by such researchers as Jeremiah Curtin, Albert S. Gatschet, J.N.B. Hewitt, James Mooney, Frans Olbrechts, Erminnie A. Smith, and Frank G. Speck.

B. Library, American Philosophical Society, Philadelphia, Pennsylvania

The Library of the American Philosophical Society contains an extremely large number of manuscripts of vocabulary and texts from all of the major and some minor Iroquoian languages (i.e. Cayuga, Cherokee, Huron, Mohawk, Nottoway, Oneida, Onondaga, Seneca, Susquehannock, Tuscarora, and Wyandot). The material is so extensive that it is not feasible to list every manuscript here. Instead, the researcher is referred to the Library's on-line guides to its collections. The guide located at www.amphilsoc.org/library/guides/indians covers manuscripts deposited in the Library prior to 1982; for manuscripts deposited in the Library after 1982, the researcher should use the guide located at www.amphilsoc.org/library/mole/. The collection includes original field notes by such researchers as Benjamin Hawkins, John Heckwelder, Peter DuPonceau, Floyd G. Lounsbury, James Mooney, Frans Olbrechts, William Pulte, Ely S. Parker, William Reyburn, Frank G. Speck, and Anthony F.C. Wallace.

C. Miner Library, University of Rochester, Rochester, New York

Lewis Henry Morgan's Iroquois field notes – mostly pertaining to the Seneca language and culture, but also contains linguistic material on the other Six Nations languages.

D. Library of Congress, Washington, D.C.

Contains original manuscripts pertaining to the Cherokee, Huron and Mohawk languages, reel-to-reel tapes of Tuscarora texts by Anthony F.C. Wallace, and other manuscripts on the Iroquoian languages. For locating specific manuscripts, the researcher is referred to the Library's on-line guide at www.loc.gov/rr/mss.

E. New York Historical Society, New York City, New York

The Society's Library holds the original language field notes and index cards for Albert Gallatin's *Synopsis of American Indian Tribes West of the Rockies*, which includes linguistic data on all of the Iroquoian languages.

F. New York State Library and Archives, Albany, New York

The New York State Library and Archives contains a vast collection of manuscripts pertaining to the Six Nations languages (Cayuga, Mohawk, Oneida, Onondaga, Seneca, and Tuscarora, but in particular the first five). The collection is so large that it is not feasible to list all the manuscripts here. Instead, the researcher is referred to the Library's on-line guide at

www.archives.nysed.gov/a/researchroom/index.shtml. At the site of the guide, one should click on "Library/Manuscripts and Special Collections and Archive Collections". Then, type in, for example, "Seneca Language" and click on "Subject" for a listing of all manuscripts pertaining to the Seneca language.

G. Canadian Museum of Civilization, Library and Archives, Hull, Ontario

The Canadian Museum of Civilization holds manuscripts by a number of researchers of the Northern Iroquoian including, in particular, the papers of Marius Barbeau on the Wyandot language and Michael K. Foster on the Cayuga language. At the present time, the on-line guide to the archival collection at http://geoweb.civilisation.ca:8001/ is not in service.

H. Beinicke Library, Yale University, New Haven, Connecticut

The Beinicke Library holds a number of rare books and early manuscripts on the Cherokee, Mohawk, and Seneca languages, some of which it recently acquired at auction from the estate of Frank T. Siebert Jr.

I. Georgetown University Library, Washington, D.C.

The Library holds the papers of John Gilmary Shea, which include early manuscripts in Cherokee, Huron, Mohawk, and Tuscarora.

J. North Carolina State Library and Archives, Raleigh, N.C.

Contains early papers of the North Carolina colonial government and other colonial documents that contain some Tuscarora personal and place names and vocabulary.

K. Archives du Séminaire de Québec, Montréal, Québec

Contains original seventeenth and eighteenth century manuscripts in the Huron-Wyandot, Mohawk, and perhaps other Northern Iroquoian languages.

L. Archives of College of Sainte-Marie, Montréal, Québec

Contains original seventeenth and eighteenth century manuscripts in the Huron-Wyandot, Mohawk, and perhaps other Northern Iroquoian languages.

M. Laval University Library, Montréal, Québec

Contains original seventeenth and eighteenth century manuscripts in the Huron-Wyandot, Mohawk, and perhaps other Northern Iroquoian languages.

N. Other Sectarian Archives

Various religious groups including the Society of Friends (Quakers), the United Brethern (Moravians), the United Methodists, the New York Missionary Society (Baptists), Presbyterians, and several Catholic orders (Jesuits, Sulpicians, Recollets, Franciscans, Dominicans) have missionized Iroquoian-speaking communities over the past several centuries and prepared prayers and other spiritual materials in the languages of the communities. For the most part, the holdings in the archives of these religious groups are only poorly known and merit further investigation.

I. Public Libraries, University Libraries, and Local Historical Societies

Many public libraries, university libraries, and local historical societies in the areas historically occupied by Iroquoian-speaking communities – i.e. all of the counties and major cities in central and western New York State, eastern and western North Carolina, eastern Virginia, southeastern Pennsylvania, southern Ontario and southern Quebec – contain original manuscripts and rare books in Iroquoian languages and manuscripts in which occasional Iroquoian personal and place names or isolated vocabulary appear.

II. Published Listings of Manuscripts and Sources for Iroquoian Languages

1. Pilling, James Constantine. 1888. *Bibliography of the Iroquoian Languages.* Bureau of American Ethnology Bulletin 2. Washington, D.C.: GPO. (Also available in reprint from AMS Press, New York.)

2. Banks, Joyce. 1985. *Books in Native Languages in the Rare Book Collection of the National Library of Canada*. Ottawa: National Library of Canada.

3. Kruse, Robert. 1991. *The Henry Rowe Schoolcraft Collection: A Catalogue of Books in Native American Languages in the Library of the Boston Athenaeum*. MS. Boston: The Boston Athenaeum.

4. Rudes, Blair A. 1999. *Tuscarora-English / English-Tuscarora Dictionary*. Toronto: University of Toronto Press. (The "References" section and the "Bibliography" section contain listings of many of the individual manuscripts in the National Anthropological Archives and other repositories containing Tuscarora language data.)

5. Rudes, B. A. 1999. Why Collect Texts?: The Native and the Americanist Traditions among the Tuscarora. In: R. Darnell and L. Valentine, eds. *Theorizing the Americanist Tradition,* pp. 209-226. Toronto: University of Toronto Press. (The article contains a nearly exhaustive listing of Tuscarora language texts in archival repositories and private collections.)

6. Woodbury, Hanni. 2003. *Onondaga-English / English-Onondaga Dictionary.* Toronto: University of Toronto Press. (The "References" section contains listings of several of most of the major Onondaga language texts in manuscript form and their archival sources.)

7. Hanzeli, Victor E. 1969. *Missionary Activity in New France: A Study of Seventeenth- and Eighteenth Century Manuscripts in American Indian Languages*. The Hague: Mouton. (Lists the major seventeenth and eighteenth century manuscripts in Huron-Wyandot and Mohawk and their archival locations.)

III. Internet Directions to Sources for Information on Particular Iroquoian Languages

A. Cayuga

1. Sweetgrass First Nations Language Council, Woodland Cultural Centre, Brantford, Ontario (www.woodland-centre.on.ca/SGpage.html).

B. Cherokee

1. Cherokee Nation (of Oklahoma) Cultural Resources Center, Language Services (www.cherokee.org/Culture/Language.asp), a good source for contemporary Cherokee language materials.

2. The Museum of the Cherokee Indian, Cherokee, NC (www.cherokeemuseum.org) holds original copies of early manuscripts written in the Cherokee syllabary.

3. Cherokee Studies Program, Western Carolina University, Cullowhee, NC (www.wcu.edu/cherokeestudies.index.html) holds original copies of the early Cherokee language newspaper, the Cherokee Phoenix.

C. Huron-Wyandot

History page of the website for the Wyandotte Nation of Oklahoma (www.wyandotte-nation.org/history/misc_articles/saved_oblivion/missions.html) provides a listing of a number of early manuscripts in the Huron and Wyandot languages.

D. Mohawk

1. Kanien'kehaka Owen:na Otiohkwa (Mohawk Language Curriculum Center), Kahnawake, Mohawk Territory (www.kahonwes.com/language/mohawk_lng__centers.html)

2. Tyendinaga Mohawk Territory (www.tyendinaga.net).

3. Sweetgrass First Nations Language Council, Woodland Cultural Centre, Brantford, Ontario (www.woodland-centre.on.ca/SGpage.html).

E. Oneida

1. Oneida Nation Language Revitalization Project, Oneida Indians of Wisconsin, Oneida, Wisconsin (http://language.oneidanation.org)

2. Oneida Language and Cultural Centre, Oneida Nation of the Thames, Southwold, Ontario (www3.sympatica.ca/elij.olcc)

G. Seneca

1. Seneca Nation of Indians, Education Department, Language Program, Salamanca, New York (www.sni.org/eae.html)

H. Tuscarora

1. Tuscarora School Language Program, Lewiston, New York (www.nw.wnyric.org/tuscarora/tuscaroraschool/tuscaror.htm)

2. Tuscarora Language Committee, Chiefs Council, Tuscarora Indian Nation, New York (email: francenep@aol.com)

IV. Unpublished Listing of Published Sources

Michelson, Karen et al. n.d. Bibliography of the Iroquoian Languages. Manuscript in the possession of the author. Department of Linguistics, State University of New York, Buffalo, New York.

Chapter Notes on "Where to Locate Resources in Selected Native Repositories and How to Find Selected Native Language Materials"

Principal contributors to this Chapter's section on site-visit and survey summaries are NMAI Project Archivists June Degnan (Yupik), Eunice Kahn (Navajo) and Gayle Yiotis (Pamunkey).

Principal contributor to this Chapter's prefatory section on searching for language materials and on language models is NMAI Project Senior Advisor on Language Models Darrell R. Kipp (Blackfeet).

Principal contributor to this Chapter's section on Algonquian, Catawba and Iroquoian Languages Sources and Mohegan Language Bibliography – Archives is Dr. Blair A. Rudes, Ph.D., Assistant Professor, Applied Linguistics Program, Department of English, University of North Carolina at Charlotte.

Principal contributor to this Chapter's section on Mohegan Languages Sources is Archivist Faith Damon Davison (Mohegan) of The Mohegan Tribe.

Principal contributors to the text review of this Chapter are NMAI Project Advisory Work Group Members Jennifer Dahle Harrison, Margaret Mauldin (Muscogee Creek) and Faith Spotted Eagle (Ihanktonwan Nakota); NMAI Assistant Director for Public Programs Helen Maynor (Scheirbeck), Ed.D. (Lumbee); NMAI Project Director Suzan Shown Harjo (Cheyenne & Hodulgee Muscogee); and Project Team Member David Sanborn (Penobscot).

Chapter 6: Where to Locate Resources in Selected Educational, Federal and Other Repositories

NATIVE LANGUAGE MATERIALS AND RESOURCES IN SELECTED ARCHIVES AND REPOSITORIES SUMMARIES OF SITE VISITS AND SURVEYS

Myriad archives and archival repositories nationwide hold Native heritage language materials. Most of these archival repositories are not known to most Native people, even those who are fluent heritage language speakers and those who are actively engaged in language preservation efforts.

The NMAI Project identified certain non-Native archives and archival repositories to be described. Project Archivists conducted site visits and provided summaries for this Chapter. Other summaries were provided by local archivists and other officials, who described their own archives and repositories.

The site-visit and survey summaries are intended to give the reader an indication of the kinds of material that can be found in selected repositories which are owned and operated by educational institutions, the federal government or state, private and international entities.

As with the summaries of Native repositories in Chapter 5, these summaries also are intended to provide information about the repositories themselves -- how the archival collections are housed, treated and cared for; how the physicality of the repository safeguards the collections or poses problems for them; what constitutes the archival collection; what is the range of archives and archival repository; what rules and restrictions apply to the archives; and what are the traits that sound repositories have in common.

Project Archivists conducted site visits and solicited surveys of educational institutions' archives, libraries, museums and other repositories holding Native language materials. These include Columbia University in New York; Dartmouth College in New Hampshire; Evergreen State College and the University of Washington in Washington; Harvard University in Massachusetts; Marquette University in Wisconsin; Northern Arizona University/Special Collections in Arizona; Sheldon Jackson College and the Universities of Alaska at Anchorage and at Fairbanks in Alaska; the University of California at Berkeley in California; the University of Hawai'i at Hilo in Hawaii; the University of New Mexico/Center of Southwest Research in New Mexico; and the Universities of Florida, Oklahoma and Pennsylvania.

The federal repositories visited were the Human Studies Film Archives and The National Anthropological Archives of the Smithsonian Institution in Suitland, Maryland; the National Archives and Records Administration -- Great Lakes Region, in Chicago, Illinois; and the Recorded Sound Reference Center of the Library of Congress in Washington, D.C.

Other sites are state, private and international repositories. They include the American Museum of Natural History and the United Nations in New York; The American Philosophical Society in Pennsylvania; the Bishop Museum and State of Hawaii Archives in Hawaii; The Field Museum and The Newberry Library in Illinois; the Microsoft Corporation in Washington; the Southwest Museum and the Walt Disney Company in California; and the Wheelwright Museum in New Mexico.

SUMMARIES OF SITE VISITS AND SURVEYS OF EDUCATIONAL INTITUTIONS' REPOSITORIES*:*

Columbia University, Dartmouth College, Evergreen State College, Harvard University, Marquette University, Northern Arizona University, Sheldon Jackson College and the Universities of Alaska at Anchorage and Fairbanks, California at Berkeley, Florida, Hawai'i at Hilo, New Mexico, Oklahoma, Pennsylvania and Washington

Here are the site summaries, which give overviews of the archival repositories and the Native legacy materials housed in them.

Columbia University -- Butler Rare Book and Manuscript Library

535 W 114th St
New York, NY 10027
Jean Ashton, Director
September 7, 2004

The Butler Rare Book and Manuscript Library (RBML) is a repository for materials that are too fragile to be a part of the circulating stacks or that are valuable, unique, rare or scarce.

The RBML collections are strongest in anthropology, sociology and other fields that have a history of damaging dealings with Native American traditions. Much of the material consists of research papers and materials from scholars, many of whom were anthropologists associated with Columbia (Boas, Mead, Benedict, Parsons, etc.). The RBML recently acquired the Union Theological Seminary's archives, which have a large missionary collection and possibly Native American material.

There are approximately 500,000 books and 28 million manuscript items in the special collections library. The staff does not measure in linear or cubic feet. A substantial number of the archival collections are off-site.

The RBML's Native American material includes the classic published books, such as Curtis and early Bibles. It also holds unique and important Cherokee materials. Its richest resources are speech recordings (e.g., dialect studies) and the papers of archeologists, anthropologists and sociologists who have done work at Columbia: the Elsie Clews Parsons collection; Alexander Stephen's 1880s material on the Hopi People; and various other field notes, which contain invaluable notes on Native nations as they were perceived by non-Native observers from 1910 to 1913.

The collections are catalogued in the AMC records. The AMC collections up until 2000 can be found in the online RLIN database. There is a published guide produced in 1992 by G.K. Hall called, *Guide to Manuscript Collections in the Rare Book and Manuscript Library of Columbia University*.

The RBML has 100,000 or more images in various formats: prints, slides, transparencies, etc. One interesting collection that might have Native American material is the Brandon Matthews Dramatic Museum Collection. Matthews was the first professor of drama in the country in 1892. He believed in teaching theater through the use of three-dimensional objects in any form of representation. The collection includes 400 or more puppets and some 250 masks.

In the early years of the RBML, there was strong interest in the history of printing and graphic design. There may be some Native American materials in those collections because of their broad, eclectic nature (for example, the history of printing in the Southwest). One collection, the American Typefounders Library, was very broad in its view of printing and graphic art, and may have some pertinent materials.

The New York Historical Society collection has material from 1800 to 1820. Albert Gallatin, Jefferson's Secretary of the Treasury, was interested in Native American speech and kept wonderful notebooks while trying to do comparisons between sound and meaning in the early part of the 19th Century.

The RBML's photographic and digital reproductions are intended for personal or scholarly use. Patrons are responsible for all copyright and permissions matters. For further information, the patron is encouraged to consult the WATCH file, a database containing the names and addresses of copyright holders or contact persons for authors and artists whose archives are housed in libraries and archives in North America and the United Kingdom.

Dartmouth College -- Rauner Special Collections Library

6065 Webster Hall
Hanover, NH 03755
Peter Carini, Archivist
August 9, 2004

Webster Hall, built in 1907, was renovated in 1996. Since 1998, it has been the Rauner Special Collections Library, which is home to the archives.

The reading room is a good size with a ceiling at least two stories high. The entire building is climate controlled. The security doors leading into the stack area are card activated. The first floor stacks hold mostly institutional records. There are four stack levels above, additional stacks in the basement and more storage in the Baker Library next door. The stacks have security cameras which activate when someone enters the area. There is large office and processing space. There is no cold storage for negatives, slides, etc.

The Rauner Library has underground stacks in the basement and a lift system to take materials up and down. The underground stacks hold 13,000-14,000 linear feet of space. The entire collection is about 36,000 linear feet and consists of institutional records, manuscripts and ancient manuscript material dating back to 2,100 BC. There is a lot of audio and visual material, but most of it is of interest only to Dartmouth College. It appears that most of the archival records are institutional records, pertaining to the history of Dartmouth and College alumnae.

There are restrictions on the use of some of the manuscript materials. These are usually donor restrictions. Photocopies cannot be provided if material is too fragile, if copying would violate federal copyright laws or if there are donor restrictions on copying the material. Library staff members do all photocopying.

The two sets of rights observed there are: 1) physical property rights held by Dartmouth College as owner of the material; and 2) literary property rights, or copyrights, held by the creator of the material or the creator's heirs.

The Evergreen State College

2700 Evergreen Parkway NW
Olympia, WA 98505
Lee Lytle, Dean of Library Service
Randolph Stilson, Archivist
August 27, 2004

This visit to The Evergreen State College focused on the Archives, the Library and the Longhouse Education and Cultural Center. The Library and Archives were undergoing renovation during the scheduled visit. According to the Archivist, the new site selected for the Archives – in the basement of the Library building -- is not best suited for the collection, due to the dampness of the climate in the rain forest of the Olympic Peninsula. The Library building has three stories and the ideal location would be on the second floor, where the collections could be better protected from heat, cold and humidity.

The Archives collection was in boxes because of the renovation. There are approximately 15 cubic feet of Native American faculty personal papers, including carvings and other objects in one of two collections named after the same Native educator, the Mary Ellen Hillaire Artifact Collection. There are some Native linguistic materials from the academic programs taught in Native Studies.

Native language audio material, along with some video and print materials, are contained in the Mary Ellen Hillaire Audiotape Archives. Among these materials are Native elders, artists and others speaking in their heritage languages, particularly those spoken by Native Peoples of the Pacific Northwest. Types of media within the archives are: paper 85%, photo 1%, audio 5%, video 8%, microfilm/microfiche 0% and other 5%. The staff consists of one person, who is a ¾ time archivist and ¼ time records manager. There are a number of library interns at any given time during the school year.

On this campus is the Longhouse Education and Cultural Center, which has a database of 500 Native American artists in the Pacific Northwest Region. The Longhouse's Native Economic Development Program offers Native artists opportunities through art sales, marketing services and events to expand their customer base. The program seeks ways to connect artists with consumers who are interested in purchasing Native art or learning about Native cultures. The Longhouse seems ideally suited to bring about exposure to the history, philosophy and art of Native Americans. It would be an excellent location for the archives, rather than in the basement of the library.

Harvard University -- Peabody Museum of Archaeology & Ethnology Archives

11 Divinity Avenue
Cambridge, MA 02138
India Sparks, Archivist
August 5, 2004

The Peabody Museum, founded in 1866, is one of the oldest museums devoted to anthropology. The Peabody collects objects from world cultures, but its strength is in the North American collections. The archives originally were located in various offices and, not until the late-1970s, was there an emphasis on creating a formal archives. The first archivist came in the mid- to late-1980s. The Archives has traditionally been a teaching unit for Harvard faculty, students and related scholars. The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) brought the Peabody more to the public eye, opening it up to Native nations and the world.

There are papers, site maps, ledgers and field notebooks in the Archives, but very little audio or visual material. The manuscript collection measures approximately 1400 cu ft, about 40% of the entire collection. There are 500,000 images, about 45% of the entire collection, a large portion North American. The Native American material consists primarily of a large portion of early photos (1800s) and early archeology surveys. About 30% of photographs, 10% of papers, and 0.5% of other materials are Native American. It has no linguistic paper material, but about one cubic foot of audio material.

The photographs are stored in a cold room for color material and film (40E F, 30% RH), and a cool room for black and white material. The research room can accommodate eight researchers. The archives follows usual research room rules: no pens, hang up coats, sign in, no bags, etc. There is no research guide but information can be found at www.peabody.harvard.edu. There are two full-time and one part-time staff.

The archives took part in the Library Digital Initiative which was to create a digital repository for all of Harvard. The archives digitized the Carnegie Institute of Washington's approximately 30,000 images, which are primarily archeology from Central and South America. After that they received other smaller grants to do specific projects for the faculty, and recently a NEA grant to do a core collection of Native American photographs.

The policy on copyright of photographic images is currently being revised. The archives is open to researchers by prior appointment. See website (www.peabody.harvard.edu). Copying is unrestricted unless restricted by the donor agreement. They do not sell copies of the materials. Photos are digitized as grants/personnel are made available. Materials are produced by employees. Only photography taken by our in-house photographer is considered copyrighted.

Harvard University -- The Tozzer Library

21 Divinity Avenue
Cambridge MA 02138
Cambridge, MA
Janet Steins, Head Librarian
August 5, 2004

The Tozzer does not have special collections, but only published material. They have published material on Indigenous languages in North and South America. Maya linguistics is their particular strength. Their collection on all aspects of anthropology and archeology probably numbers close to 100,000 volumes.

Marquette University -- Department of Special Collections and University Archives and Raynor Memorial Library

1355 W Wisconsin Ave
Milwaukee, WI 53233
Matt Blessing & Mark G. Thiel, Archivists
July 30, 2004

The new Raynor Memorial Library opened in September of 2003. On the top floor of the library, the archives is organized, the stacks are neat and the processing room is large and orderly. The research room is also a good size and can handle 22 researchers at one time. There are security cameras and the research room is staffed when researchers are present. It is well lit with interior lighting and natural light from the large windows.

The Native American collection is approximately 750 cu. ft. The Native linguistic material is approximately 10 cu. ft. of text, mostly Lakota and Ojibwe; a few items in about 24 other Native languages; about 10 cu. ft. of audio material, mostly Cheyenne and Lakota; and a few items in about six other Native languages.

Marquette employs excellent preservation methods and climate control. The collection storage area is 6,600 sq ft, kept at 61 degrees F and 50% RH. They plan to buy a commercial freezer unit for the negatives. The building is new, the archives are on an upper level and there are no environmental problems. The daily maintenance includes use of Mylar, acid free folders, neutral balanced archival boxes, etc. They contract with a paper conservator when needed. Their main problem is the dryness of the air in midwinter in Wisconsin.

There is a staff of five full-time archivists, two full-time technical assistants (one temporary) and about ten part-time student assistants.

Exhibits, teaching and study resources can be found online, including the Midwest guide to Catholic Indian records and the survey/future guide of Western Catholic Indian records. A research guide and finding aids can also be found online. Today 90% of the manuscripts have online searchable guides. Eleven thousand photographs from the University archives have been digitized. They will have the heaviest used (10%) of the 35,000 images of the Bureau of Catholic Mission records available online by late 2005.

The archives do not publish or produce any materials. It follows the standard Library of Congress copyright laws for the materials in its possession.

Northern Arizona University -- Special Collections

Cline Library Special Collection and Archives
P.O. Box 6022
Flagstaff, AZ 86011-6022
Karen Underhill, Head of Special Collections and Archives
(928) 523-6502
Karen.Underhill@nau.edu
www.nau.edu/library/speccoll
July 2, 2004

The mission of the Cline Library Special Collection and Archives (SCA) is to collect, preserve and make available archival materials that document the history and development of the Colorado Plateau. In addition, SCA maintains the Northern Arizona University (NAU) Archives, which consists of the institution's records and photographs, as well as theses, dissertations and works by students and faculty. SCA also serves as the home for the Arizona Historical Society Archives of Northern Arizona Division. The NAU and SCA are governed by a Collection and De-accession Policy.

The SCA houses archival materials in three secure rooms on the second floor of NAU's public library. The collection is comprised of manuscripts, letters, diaries and ledgers; vintage and contemporary photographs; book, journals, oral history interviews; films; newspaper, maps and subject files. Collection strengths include: the Colorado River and Grand Canyon; Native American history and culture (Four Corners area); land use and the environment; and economic development of the Colorado Plateau.

The Native American collection is approximately 20% of their entire collection and is predominantly from tribes residing in or indigenous to the state of Arizona. The Native American collection encompasses Native American life, ethnographic issues, Navajo-Hopi land resettlements and federal reservation policy. In addition, the Native collection consists of photographs, oral interviews, manuscripts and documents concerning the Colorado River Basin, especially water, land use and environment concerns, tribal newspapers, newsletters and the reservation trading post era. Included are materials that have been published by Native American governments, the Bureau of Indian Affairs and government printing offices and any other federal government agency.

The SCA collection relating to the Native American Linguistic category consists of oral history recordings, curriculum, video/audio tapes and manuscripts documents from the southwestern tribes of Navajo, Hopi, White Mountain Apache and others. The SCA houses approximately 7 million linear feet of manuscripts and paper documents; one million linear feet of photographic materials; over 1,100 sound recordings; 400 video and films; approximately 25,000 digital and electronic records; 2,000 maps and 35,000 books and journals. In one area, their department is able to preserve and operate a state-of-the-art conservation laboratory for their archival holdings. They are able to humidify and flatten, fumigate, encapsulate materials and provide custom storage treatments. The SCA staff is trained in preventative and remedial preservation as they process archival materials.

The SCA is housed in a climate-controlled, filtered air-quality, UV lighting and secure facility. This includes a wet pipe sprinkler system and a three-security motion detector zone for each storage area. The staff has implemented a strong security program using card key and key numbering code systems for high level security. No students or researchers are allowed in collection storage unless accompanied by a staff member. The SCA has three storage rooms for collection materials. One room is for processing new acquisitions, photographing or scanning and shelving catalogued documents, books and new accessions. Included are large oversized cabinets to store newspapers, prints and maps. The second, or vault room, houses all the rare or special manuscripts, sensitive materials, sound recordings,

film, video and sensitive photographic materials. This room is a high security area for all staff. The third rear room stores all special oversized journals, ledgers and large rare books.

There is a lobby area for exhibits, which adjoins two large reading rooms for viewing materials, computer access to collection and areas for sound and video. The student interns observe the front reference desk and assist visitors. Administrative staff offices are behind the reference area and storage rooms. The SCA consists of 8.5 full time staff members and up to twelve NAU student interns working per semester. Staff members train and instruct student interns on locating materials for researchers, photographing, assisting in the process of materials received and implementing preservation prevention. The SCA has a small rotating exhibition in the lobby area. Students are trained in researching and archival processing. SCA publishes and designs educational guides using multimedia CD-ROM's; provides workshops throughout the year for museum and archive professionals on photographic appraisals, records management and conservation preventions (supported by the Arizona State Library, Archives and Public Records). SCR had problems with fire door exits that were placed in storage rooms, which had no secure locks or visual cameras to spot people coming or going. They have resolved this problem.

Karen Underhill, SCA Head of Special Collections and Archives, has worked there for the past 14 years and is quite knowledgeable about the collection. The three collection storage areas that house the archival materials are quite spacious; the floor holds up to an impressive 200 lbs. per square feet and the storage rooms are approximately 16,000 to 20,000 square feet All storage areas require a key card or number code security and all storage rooms have a three zone motion alarm detector security system. The vault storage is the only area that has a fire suppressant halon system. The reading rooms are comfortable and have up-to-date equipment with electronic access to collections. The state-of-the-art conservation lab is 1500 square feet and equipped for training workshops and staff use. The SCA has room to grow and has the capability to process, catalogue and input archival materials online.

The SCA Outreach Program assists and supports tribal museums to work collaboratively on Native archives' materials. At the time of the site visit, the Hopi Tribe received a large donation of photographs relating to their tribal heritage. The SCA agreed to properly process, catalogue, store and implement preservation care for this collection. In exchange, the Hopi Tribe agreed to consult on an SCA Outreach educational project. The SCA collection concentrates on the Colorado Plateau region (Four Corners area). with less focus on Native American materials and language generally. They are specific about what they collect, but their outreach programs are outstanding and they tend to support Native issues.

Sheldon Jackson College -- Stratton Library

801 Lincoln Street
Sitka, AK 99835
June I. Degnan, Archivist/Librarian
October 2, 2004

The Sheldon Jackson College is one of the oldest private colleges within Alaska. It has recently celebrated its 125th Anniversary. The college is located within the City of Sitka. The University of Alaska Southeast also is located here and its students have access into the Stratton Library, along with all Sitka residents. The library was built in 1974 and has 12,000 square feet of space. Part of the building is designated as a Learning Resource, meaning there are dedicated classrooms within the building.

The archives section is housed on the second floor of the building and is not climate controlled; therefore, there are problems with heat and cold, depending on the season. Sitka is located in the rainforest of the Tongass National Monument; wet weather is mostly what happens most of the time here.

The archives hold 1,839 volumes of the Clarence Andrews Rare Book Collection. There are myriad audio language tapes in need of reformatting, for which there is no funding presently. The language tapes were made in earlier times with speakers of the Native Languages who for the most have expired. Those tapes are of the Tlingit and Haida Languages. Further, there were a number of oral history interviews on

the History and Influence of the Sheldon Jackson College by a number of local persons. These tapes need to be converted to another medium so that they can be preserved and used in the future. The college has the ownership of the 900 glass negatives of the E.W. Merrill Photography Collection, 41 of which have been enlarged, formatted, framed and exhibited for six months at the Museum of History and Art in Anchorage, Alaska.

The Sheldon Jackson Museum is not part of the College. It was sold earlier and is now part of the State of Alaska Museum Project. That facility holds a number of Alaska Native artifacts and monographs related to Alaska Native History. The Isabell Miller Museum is another place where artifacts and monographs detail the early history of the area.

Tulane University – Manuscripts Department

New Orleans, LA
Leon Miller, Manuscripts Librarian
January 28, 2005
Email survey

The Tulane Manuscripts Department is a leading research archives for studying the society and culture of New Orleans, the State of Louisiana and the Deep South. In the years since its first donation on May 3, 1889, the Manuscripts Department has grown to become New Orleans' most comprehensive research archives, with over 2,000 collections. The collections of the Howard-Tilton Memorial Library support the educational and research programs of Tulane University. The size of the entire collection is about 2.5 linear miles. They have no Native American material, including Native American language material. The collection is 99% paper. There is a climate controlled macro environment and acid-neutral micro environment, some encapsulation, some de-acidification (Wei T'o). There is no cold storage yet, but the archival stacks have their own separate climate control system, and no environmental problems have been encountered. There are 11 staff members.

They are open during normal business hours to all researchers, who do not need to be affiliated with Tulane University to use the holdings. There is no printed catalog, but there is a card catalog and an extensive website (http://www.tulane.edu/%7Elmiller/ManuscriptsHome.html), a speaker's bureau, an exhibit gallery, receptions and guest speakers. They do not have a policy on copyright or on use of materials. Everyone is welcome to examine the catalog/list of materials. They have tight restrictions on photocopying for preservation reasons, but non-destructive reproduction is allowed.

They will sell microfilm and make microfilm for researchers, if researchers are willing to pay the fees. An employee and an outside vendor produce photocopies, photographs, microfilm and digital images. Materials are not being copyrighted. They only reproduce original holdings for reference and study purposes. For an archivist to "publish" from his or her own holdings can be a conflict of interest, unlike the practice at some museums.

Mr. Miller's comments: If you're a museum, I would be very careful to keep an intellectual wall separating museum functions and archival functions. They are two different responsibilities with different purposes, different professional responsibilities, different ethical codes, and they sometimes conflict. I would make absolutely certain to have a professional archives staff in charge of the archival holdings and a professional museum staff in charge of the artifactual holdings. Whatever you do, do not apply museum practices to archives.

University of Alaska at Anchorage -- Consortium Library

3211 Providence Drive
Anchorage, AK 99508
Dennis F. Wallee, Archivist and Manuscript Curator
October 25, 2004

This facility is new and the staff is in the process of moving in, getting situated and making minor changes in the process. The new archive facility appears to have ample room for growth, if it remains as an archive. They have a mission statement and a collection policy, and count their holdings in linear feet, of which 4400 feet are designated as the amount of archival holdings. Their Native American/Alaska Native material percentage is small, at 7-10%. The Native linguistic material is 2-3% and Native audio is 2%. Standard archiving methods are used, such as temperature and humidity control, acid free paper and containers. Due to budget cuts, the archives are only open for half days during the work week and there are two full-time archivists and one half-time archivist. The policies can be found online. There are rooms designated for various storage, reference and work areas, and there is ample space for growth and storage, contingent on funding.

Housed in the UAA Consortium Library across the hall from the archives is the Alaska Moving Image Preservation Association Project (AMIPA). It is a nonprofit organization founded in 1991 to provide archival and technical methods of preservation for Alaskan film and video materials. The AMIPA is a treasure trove of thousands of feet of Alaskan film and videos dating from 1930 to the present. They have preserved, digitized and catalogued approximately 8,000 pieces of video for the North Slope Borough, in partnership with Barrow's Tuzzy Library. The staff, which was on outside assignment at the time of the site visit, can be reached at: www.amipa.org

University of Alaska at Fairbanks -- Elmer E. Rasmuson Library

Alaska and Polar Regions Department
P.O. Box 756808
Fairbanks, AK 99775-6808
www.uaf.edu
Michael Krause, Alaska Native Language Department
November 3, 2004

The archives and library were recently renovated to include a new security system and upgrade the hearing and cooling system. There are four permanent archivists and three temporary library staff. The technical support staff specializes in cataloging and public service. This library boasts that it has the largest collection (6,000) of rare books. Of the collections, 70% is made up of paper, photograph 10%, audio 5%, video 5%, digital 5% and other 5%. The collection is measured in cubic feet and contains 10,000 cubic feet of materials.

The Alaska Films Archives recently rebuilt the original vault and added a new one, doubling the space for storage and collections. It is climate controlled at 50 F, 35% RH for films and glass plate negatives, and 35F, 35% RH for videos and audio magnetic tapes. The Archives and Manuscript and Manuscript Maps have increased the collection storage space through compactable shelving and an improved floor plan. A vapor barrier has been added which envelopes the entire archives area; this will help to protect the collections during the cold, dry winter months. The Rare Book and Map Collections vault has been rebuilt to allow for better climate control and added protection from fire and burglary.

The Oral History Program has over 5,000 hours of recordings with Alaskans of different cultures and experiences. Copies are available for checkout and interlibrary loan. This program also produces the "Project Juke Box", a serried of multi-media oral history databases on CD-ROM. The Rare Book Collection has over 5,000 volumes of early exploration accounts and studies of the Polar Region from the 15th to the early 20th centuries. It has the largest collection on Russian America. There also are the

Historical Photo, Manuscript Collections and the Alaska Periodical Index, all of which can be located online at: http;//www.uaf.edu/library/collections/apr/index/html

The Alaska Native Language Center (ANLC) was established in 1972 through state legislation to be a center for research and documentation of the 20+ languages spoken by Alaska Natives. It is a major center in the U.S. for the study of Eskimo and Northern Athabascan languages and is internationally recognized as such. It has been a lifelong project of Mr. Krause, who says the Center is in need of funding and space to house the massive amounts of documentation they have compiled through the years. This project appears to have been neglected in the recent renovations. It is in need of a lot of immediate attention in the area of proper storage, adequate space, acid free storage material and an adequate amount of professionally trained personnel to guide the preservation of the material so it may be stabilized for present and future use. There is a critical need for state financial support to fulfill the promises made in 1972 to document the Alaska Native languages, which would shore up the preservation and revitalization of those languages.

The University of California at Berkeley -- The Bancroft Library

Berkeley, CA
Theresa Salazar, Curator of Western Americana
December 6, 2004

The Bancroft Library dates from 1905. It contains manuscripts, rare books and the anthropology department papers. The Bancroft Collection, the library's largest collection, documents the history of western North America, including California, Mexico and Central America. The entire collection is 45,000 linear ft. The Native American material is approximately 1,500 linear ft and 30-40% of the Native American manuscript collection is language material. The audio language material is at the Berkeley Language Center. Paper comprises 75% of the collection; photographic material, 20-22%; audio, 2%; video, 1%; and there is a small amount of digital and microfilm material. The research room can seat 45 patrons who go through a registration process. The Bancroft follows the standard research room regulations. Certain materials may be restricted by statute, donor or office of origin, or for other unspecified reasons. There are 31 full-time and 5 part-time staff members.

There are guides to the Western Americana and Latin Americana manuscript collections published in 1963. There is no detailed guide for the Native American materials, but a listing of the Native American collections is being prepared. Many of the finding aids are on the Bancroft website (www.bancroft.berkeley.edu), which includes additional orientation material and detailed information about Bancroft's catalogs, collections and services. The Bancroft has many digital projects designed for K-12 instruction. The Friends of the Bancroft Library host a wide variety of exhibitions, lectures, symposia, tours and other special events throughout the academic year. In addition, the Library offers introductory tours, bibliographic instruction sessions, classroom presentations and other programs.

The University library has a conservation lab that does book and paper conservation. Audio and video are converted to stable formats based on patron requests. The Bancroft has a freezer for negatives, but most of the collection is stored offsite in a temperature/humidity controlled environment. Earthquakes are an issue; the building will be retrofitted in the next two to five years. The repository is open to the general public. Besides donor restrictions, there can be restrictions on fragile, rare, unique or unprocessed material. The Bancroft has very specific guides and limits to photocopying of materials. They sell microfilms of materials and make photographic copies/digital scans and photocopies of materials depending on restrictions. Microfilm, photocopies and reproductions are done in the library; audio/visual reproductions are done by an outside vendor.

Requests for permission to publish materials must be made in writing and permission also must be sought from the copyright holder. The Bancroft Library is cited as owner of the physical material and the Bancroft does not surrender its own right to publish or give others permission to publish the material.

University of Florida -- Florida Museum of Natural History

Exhibits & Public Programs
SW 34th Street & Hull Road
P.O. Box 112710
Gainesville, FL 32611-2710
Darcie A. MacMahon, Assistant Director of Exhibits
July 30, 2004

According to some Seminole people, this is the place to find more history of the present day Indians in Florida. The Museum holds a number of voice recordings of the Seminole and the Miccosukee Peoples. The Museum has life-size displays of the Seminole and Miccosukee Peoples as they have evolved through time.

Those persons who have painstakingly given of their time to preserve their history at this place are:

Mary Frances Johns (2004). Her recordings are held and used within the displays that depict the life of the Seminoles and Miccosukees. This was the extent of collections that pertained to Native Americans living in Florida today.

Sonny Billie (1935-2003). Miccosukee Tribe of Indians of Florida Bundle Carrier, he worked with the Museum to make certain all the exhibits reflected the true history of the Seminole and Miccosukee Peoples.

A list of the Museum's collections of Native language speakers in Choctaw, Miccosukee, Muscogee (Creek) and Seminole can be obtained from Dr. Julian Pleasants of the Oral History Program Department of the University of Florida. They are in the process of digitizing that collection, which is known as the Proctor Oral History Project.

University of Hawaii at Hilo -- Edwin H. Mookini Library and Graphic Service

200 W. Kawili Street
Hilo, HI 96720-4091
808-640-2129
Linda Marie Golian-Lui, Director
October 11, 2004

Of all the sites visited in Hawaii, the Project Archivist was most impressed with the University of Hawai'i at Hilo. Assistant Professor of Hawaiian Languages and Hawaiian Studies Larry L. Kimura provided information on the Hawaiian Language Department's wealth of recordings of the Hawaiian Language, a collection he began in 1970 as a radio talk show host. The 420 audio recordings are well preserved and come in a number of record forms, beginning with reel to reel tape, tape and compact disc. These voice recordings are in constant use and document how the language has evolved to the present time. Not only have they done a superb job of preserving the language, but the collection is used to increase the number of speakers of the Hawaiian Language and to revitalize it.

The department is in critical need of space to house the recordings and to allow ample room for the persons who are seeking to use/listen to the voice recordings of the Hawaiian Language.

Media and Telecommunications Department Coordinator Keola Donaghy provided information on the Hale Huamo's Hawaiian Language Center. Macintosh Apple computers are used to teach the language and for archiving purposes. Their system has 12,500 archival material-newspaper links to GIS programs

online. The prototype was designed after one developed in New Zealand, which uses open source software. Within the Apple system, it is known as "Quick-Time Streaming." It is a file which is large and user friendly. The teaching of Hawaiian Language online is in its third year. This language project is in a partnership with Alu Like, Inc. They use the early Hawaiian Language newspapers, which are also online and available electronically as "ULULAU" at the University of Hawaii in Hilo. This network is available globally and has a high volume of hits.

Aside from the need for adequate space to house the Hawaiian Language Project and Hawaiian Studies, it is a remarkable example of language preservation, revitalization and continuing education. Project Archivist's comments: If ever we were asked to give a stellar example in language preservation, the Hawaiian Language Studies Department is living proof that enthusiasm and partnerships of the University, community, staff, faculty and students can make a project shine. Their efforts should be supported and nurtured so it can continue to benefit all those who seek to embrace a Native Language.

The University of New Mexico -- Center of Southwest Research

Zimmerman Library
Ann M. Massmann
Southwest Studies Librarian Collections Coordinator, 505-277-8370
massmann@unm.edu
Kathleen Ferris, Archives Division, 505-277-7172
Mary Alice Tsosie, *Navajo*
American Indian Research and Outreach Librarian
Indigenous Nation Library Program, 505-277-8922
Paulita Aguila, *Santo Domingo*
Curator of Native American Studies and
Indigenous Nations Library Program, 505-277-4243
1 University of New Mexico
Albuquerque, NM 87131-1466
505-277-6451-tel, 505-277-6019-fax
Website: www.unm.edu/
July 21, 2004

The Center for Southwest Research (CSR) Special Collection contains approximately 13,000 linear feet of books and documented materials. The CSR collection encompasses the southwest, particularly, Native nations in New Mexico, Ute Nation, Navajo Nation, Arizona and parts of Oklahoma, Texas and California. Other areas of interest are the First Nations in Canada and Alaska. The Native American collections at CSR have approximately 30,000 documented materials; their goal is to survey the entire collection for size and subject areas, particularly tribal subjects.

The CSR collections of Native American Language materials are estimated to be 50% of the Native American Collection. The American Indian Oral History Collection was funded by the Doris Duke Foundation and consists of 900 recorded tapes and transcripts of interviews conducted between 1967 and 1972 with Native Americans from New Mexico, Arizona, California, Washington and Alaska. The Navajo and Pueblo recordings have transcripts in English and CSR's goal is to have them all available for public access. These recordings reveal personal and family histories representing invaluable and sometime humorous information on social culture, education, ceremonies, legends, language, government and history. Historical subjects include the Pueblo Revolt, inter-tribal relations, relations with the federal government and accounts of relations with the Spanish. Many tapes contain recordings of meetings on such subjects as education, tribal government and federal relations. They also have a small collection of published Native American language dictionaries, Native music and song recordings. Other Native language collections are located throughout the campus libraries, Center for Southwest Research, the General Library, the Native American Studies Library and four other small libraries on campus.

CSR archive materials consist of 13,000 linear feet of books and documented materials, 90,000 volumes, over 1,000 audio recordings, film and video. They have a small collection of microfiche, microfilms and photographs that are integrated with their documented materials on boarding schools, artist photographs, tourism and field notes from anthropologists. CSR provides general housing when processing archival collections, and houses materials to standard procedures, sleeves for photographs, acid-free boxes and folders for manuscripts. They have a part-time Conservator Officer who monitors for pests and environmental concerns, and checks hygrothermographs. They would like to hire a sound and media archivist to examine all the sound recordings for preservation needs and migration to digital format. CSR collection storage is closed access and on three levels underground with access by elevator and code security. There are two high-level security areas, which are monitored closely by staff, surveillance camera and motion detector. There is one floor that provides appropriate climate-control for collections. All storage areas have metal shelving while others have large flat storage cabinets. Storage capacity is close to full occupancy.

The CSR main lobbies display small exhibitions relating to New Mexico history. There are two reference desks in the main reading room and Special Collections room. Lockers are provided for patrons who enter the Special Collections area. A staff member at the reference desk assists patrons in locating reference materials and to view microfilm. The Special Collections room can accommodate several researchers and has reference books available for public access. The University of New Mexico General Library has 150 full-time librarians with 12 staff members in the CSR Archives Special Collections. They hire five to eight students each semester and accept seven to eight fellowship scholars year around.

CSR's Indigenous Nations Library Program (LNLP) works with local tribes and institutions in sharing published materials, particularly on Native American issues and the southwest. They have been working with New Mexico tribes and would eventually like to reach other areas. UNM Native Student Services and CSR staff and students offer assistance or mentor students to develop skills in researching and locating materials in the library or internet. Last school year, CSR staff worked on eight educational public programs for UNM students and the community through lectures and videos.

The CSR is located on the campus of the University of New Mexico at the Zimmerman Library. The Zimmerman Library and Center for Southwest Research have seven floor levels, three upper levels, ground level, and three underground levels. The storage for the CSR collections is housed in four rooms, in the three lower levels of the library. In some of the collection storage, they rely on the natural concrete walls to keep the storage environment cool and use the air conditioner only during the summer months. Fire may be a hazard, if one were to start in the lower levels, since the only exits are the elevator and stairway.

University of Oklahoma – Libraries, Western History Collections

Norman, OK
Donald L. DeWitt, Curator.
Kristina L. Southwell, Manuscript Librarian
November 12, 2004

The size of the entire Western History Collection is 20,000 linear feet. The size of the Native American collection is 40% of the total; and the amount of Native language material is 4% of the total. They have approximately 35 recordings of Native language audio material. The archives collection consists of paper (60%); photographic material (30%); audio (5%); and microfilm/microfiche (5%). They primarily focus on paper preservation. They do deacidification of individual documents and encapsulate them in Mylar. They also do some format conversion from audio cassette to compact disk. Their book preservation is handled by an outside conservator. They have only standard stack areas, no cold storage. Floors are concrete; walls are mostly cinder block and plaster. Their shelves are combinations of metal and wood. They have air conditioning and heating in the stack areas for a minimum of environmental control.

They have a large research room with the ability to seat about 40 people at the research tables. There are two online catalog computer terminals. Anyone can use the research room to read, study or do research using the materials. There are printed guides to the collections and a website through the University of Oklahoma Libraries: http://libraries.ou.edu/info/index.asp?id=22. There are five full-time staff, one half-time graduate assistant and ten part-time students.

Present problems encountered in the archives involve air conditioners in the manuscript stacks that are old-fashioned units and produce too much humidity. This occasionally leads to minor mold problems near the a/c units. This has been controlled through the use of dehumidifiers.

Any researcher is permitted to examine their catalogs and other guides in the reading room, and use the materials, as long as s/he agrees to abide by the reading room rules, available online at http://libraries.ou.edu/info/info.asp?id=22. Any researcher can purchase copies for research use only. These copies are not to be placed on file in any other repository; they are for research use only. All researchers are required to fill out a reference request form when they sign in, which indicates their name, address and general research interests. A copy of the policy is also available online.

They copy materials for a fee if they have the capacity to make those copies. Manuscripts and sound recordings are copied without restriction, dependent on donor and copyright restrictions. Books are copied according to standard copyright rules. The Western History Collections make copies of sound recordings on patron request for research purposes only; available formats are CD and cassette tape, which are produced in house by employees. They do not hold copyright to materials in the collection; the researcher must secure the right to use the materials from the copyright holder. The WHC can give repository permission to publish only. The author of the materials is noted in the material description.

The University of Pennsylvania Museum of Archaeology and Anthropology – Archives

3260 South Street
Philadelphia, PA 19104
Alessandro Pezzati, Archivist
September 3, 2004

The Archives was started in the late 1970s, but it did not officially open until 1981. There are two areas: the main archives, reading room and stacks, which hold paper, maps, drawings and photographic prints; and the photograph archives for film, negatives, glass plates, slides and lantern slides. The Archives contains records from the administration of the Museum, as well as from expeditions throughout the world. The manuscript collection totals 2,000 linear ft., of which the Native American material totals about 25 linear ft., and the Native American language material less than one linear foot.

J. Alden Mason had all the old wax cylinders (e.g., recordings by Frank Speck, Edward Sapir, Wilson Wallace who worked with the Micmac, an interview with a Hopi Indian in Philadelphia in 1912) sent to the Archive of Traditional Music in Bloomington, Indiana. They made reel-to-reel copies for the University. The Archives still has the copies, but now there is no equipment on which to play them. The Archives has linguistic notes from Alaska done in the early 1900s. Louis Shotridge, who was Tlingit, worked for 20 years collecting artifacts and ethnographic information for the Museum, and was later an assistant curator. The Archives also has film, including early silent movies. There was also a specific film project done in the 1960s among the Navajo.

The photo archives is in a centrally air conditioned part of the Museum, but this area is still subject to high humidity. The main Archives is in the 1899 wing, the oldest part of the building, which is not centrally air conditioned and has only window units. So. There is very little climate control. Renovation is now going on and there will be an HVAC system that will feed into the entire building, but the Archives is about ten years away from that. The research area and the stacks are in the same room. The staff consists of two full time and one part time worker, five work-study students and ten volunteers.

The Archives does the usual preservation: acid free boxes and folders, encapsulate in Mylar, photo sleeves, copy on acid free paper, keep away from light and dust. In the future, they are due to get cold storage for a portion of their photo collection. There was a guide published in 1984, but it is not complete. They are working on a website and will put finding aids there, which will be more comprehensive than the guide. In the last couple of years, the Archivist has worked on two different exhibits from which there were books published that helped highlight some aspects of the archival collections. He wants to do more along those lines and also to put some on the web. He also writes articles for "From the Archives," a regular feature in the Museum's magazine, *Expedition*.

They are currently working on a comprehensive copyright policy. In general, they ask users to obtain permission for any reproduction, distribution or exhibition of archival materials. All users are allowed to look at the catalogs, finding aids and materials. Non-University of Pennsylvania Museum researchers are required to make an appointment and obtain written permission from the appropriate Museum Curator or head of department of origin. Certain administrative files (i.e., Director's Office records from the last 25 years) are restricted. Materials relating to claims under NAGPRA are reviewed by the Curator of the American Section. All photocopies are made by the Archives staff, who will copy most things except for fragile or bound material. It is primarily an institutional Archives and collects what is being produced by curators and other offices. They follow the current copyright law; the author of the material is the one who is credited.

University of Washington -- Suzzallo Library

Special Collections
Box 352900
Seattle, WA 98195-3529
202-543-1879
jdbolcer@u.washington@edu
John D. Bolcer, Acting University Archivist
Gary Lundell. Library Specialist I
August 23, 2004

The University of Washington has a number of libraries located on its campus directed to the different programs and studies taught there. The Native American material can be found at the Suzzello Library within the Special Collections Department. Other departments containing references to Native Americans are the Anthropology and American Indian Studies Departments. Access to that material is through the Reference Librarian/Media Service Coordinator at the Odesgaard Undergraduate Library, Randy Hertzler. Another resource person is Susan Kane, Librarian, Odesgaard Undergraduate Library. Additionally, there is the Native American Law Center and Professor Robert T. Anderson, Director and Assistant Professor and the Burke Museum.

Within the digital collections of the Special Collections Department are original photographs and documents of the Northwest Coast and Plateau Indian Cultures, which are complemented by essays written by historians, anthropologists and teachers about both particular tribes and cross-cultural topics. These cultures have occupied, and in some cases still live in parts of Alaska, British Columbia, Washington, Oregon, Idaho and Montana. The Digital databases contain over 2,300 original photographs and approximately 1,500 pages from the Annual Reports of the Secretary of the Interior from 1851 to 1908 and six Indian Treaties negotiated in 1855. The Secondary source includes 89 articles from the Pacific Northwest Quarterly and 23 UW publications in Anthropology.

SUMMARIES OF SITE VISITS AND SURVEYS OF FEDERAL REPOSITORIES:

Human Studies Film Archives, The National Anthropological Archives, National Archives and Records Administration – Great Lakes Region and the Recorded Sound Reference Center

Human Studies Film Archives (HSFA)

Museum Support Center
Smithsonian Institution
Pam Wintle, Manager
January 17, 2005

The Smithsonian Institution established the Human Studies Film Archives in 1981 to collect, preserve and make accessible historical and contemporary ethnographic film records. Films are acquired according to criteria intended to maximize their research and educational usefulness. Priority is given to films and videotapes (depending on the extent of ethnographic coverage and the historical period) that complement the subject matter in the HSFA collections, or contain new subject matter not represented in the HSFA collections Before HSFA commits resources for processing and costly preservation work, they determine the possibility of the transfer of copyright interests to HSFA
Once the film has been accepted by HSFA, an agreement between Donor or Depositor and the HSFA is drafted. Reasonable restrictions may be applied by the Donor/Depositor to any portion or portions of the materials that may potentially embarrass, insult, damage, injure or harass living persons or for other reasons. The film archives reserves the right, for materials that become the property of the archives, to dispose of any portion or portions of the materials which are of no anthropological, historical or archival interest to the HSFA. Restrictions are only in accordance with donor agreement, requirements and whether there are reference copies (original film, video and audio are not available for research use).

The HSFA holds 8,000,000+ feet of original film, 1,000 hours of original video, 250,000+ photographs, approximately 9,000 hours audio, 56 linear feet of paper records and 350 books. The Native American material, defined as North, Central and South American, comprises 20% of the holdings. There are 600 hours of Native American language audio tapes and sound on film. The HSFA holdings are: paper, 4%; photos, 6%; audio, 25%; video, 10%; and film, 55%.

Original film and video and preservation materials are stored in an environmentally controlled area with restricted access. Such materials are not permitted to leave the HSFA, except for purposes of archival reproduction and in accordance with the Donor/Depositor agreements. Original film or video materials are not projected or played except in extreme circumstances or for identification purposes. The primary approach for preservation is based on environmentally controlled storage for film, video and photographs, and freezers for film with acetate deterioration. They also do film-to-film copying, migrating video to new formats and duplication of sound materials to analog tape (undergoing review). The vaults need replacing—aging facilities and environmental equipment—and to be relocated closer to staff for effective oversight.

HSFA has a 1995 Guide to the Collections, which is available on the web and catalogued records available through SIRIS (Smithsonian Institution Research Information System), www.siris.si.edu. There is no reference room; researchers are accommodated in technical spaces and the staff office area. There are one full-time and two part-time staff. Present staff size and resources prevent HSFA from initiating outreach programs. Cataloging and finding aids are prepared for the films, videotapes and associated materials.

The Smithsonian Institution is a public entity and everyone is allowed to examine the catalog and material. Use of materials is in accordance with donor restrictions, copyright, Native policies and protocol for research, cultural property rights and archival policy. HSFA does not produce media, but makes materials available to others for use in media, scholarly presentations and for other purposes. According to HSFA's use agreement, HSFA and possibly the donor must be credited in the acknowledgments.

When film, videotape or other materials from the Collection are reproduced, the user must comply with any written instructions regarding the credit line or the use of the name of the Smithsonian Institution or the Human Studies Film Archives.

The National Anthropological Archives (NAA)

Museum Support Center, Smithsonian Institution
Suitland, MD
Robert Leopold, Information Manager
August 23, 2004

In 1968, the Smithsonian Institution's Office of Anthropology archives was transformed into the present-day National Anthropological Archives.

Approximately 50% of the entire collection is Native American. NAA has several thousand items of Native language materials, including audio tapes, video tapes and films. The collection consists of 8,400 linear feet of paper; 500,000 images in print, negative, plate and other formats; 2,500 recordings; 56,000 digital surrogates; ca. 1,400 reels of microfilm.

A small number of collections are temporarily restricted to protect the identity of research participants and children, the confidentiality of medical records or the confidentiality of editorial records.

There are no environmental problems. Preservation methods include standard environmental controls, re-housing, encapsulation, media migration and media refreshing. Storage at MSC is climate controlled. It has off-site cold storage for film and video.

Some of the paper collections also are stored off-site at Iron Mountain. Iron Mountain was started in 1951. It stores and manages paper records, electronic images, healthcare records and film, and sound assets off-site, off-line, out-of-reach and with on-time electronic vaulting, media vaulting, archival vaulting, disaster recovery readiness and media services. Today, Iron Mountain is the global leader in records and information management services. Iron Mountain currently provides services to more than 200,000 customer accounts in 82 U.S. markets and 63 international markets, operating over 800+ facilities in the United States, Canada, Europe and Latin America. The Iron Mountain headquarters are located at 745 Atlantic Avenue, Boston, MA 02111 USA; (800) 899-IRON.

National Archives and Records Administration (NARA) -- Great Lakes Region

7358 S Pulaski Rd
Chicago, IL 60629
Scott M. Forsythe, Archivist
July 28, 2004

The NARA collects records of the federal government through agreements with agencies and courts. The entire collection is 74,656 cu. ft. The Native American collection consists of approximately 2,500 cu. ft. The amount of Native language material is minimal and consists mainly of names. The collection is 90% paper and 10% microfilm or microfiche. There is some photographic material, but it is held with the textual material and, thus, the amount is difficult to determine.

The NARA has textual and microfilm research rooms. There are no restrictions on microfilm use, but some privacy and security restrictions apply to textual material. The microfilm room can accommodate 24 researchers and the textual room can accommodate 14 researchers. NARA has nine full-time and one part-time staff members.

The facility was built over 30 years ago and is now being retrofitted to new standards, such as lower temperature and humidity control, filters over air intakes, etc. One recurrent problem is that the HVAC system does not always function and there are minor water leaks. NARA follows the usual archival preservation methods: acid free folders in acid free archival boxes in temperature and humidity controlled room. There is no cold storage facility.

An online guide is available through the main National Archives website (www.archives.gov). NARA provides onsite and offsite presentations to genealogic, K-college and historical groups and organizations. NARA also conducts annual symposia with historical societies and other groups.

Federal records cannot be copyrighted, because they are created by and for the government. However, copyrighted material may be included in federal records. Individuals making copies of such material are advised to locate the copyright holder for permission for further reproduction.

All finding aids are open to any member of the public without restriction. All records, whether textual or on microfilm, are available for examination. However, due to privacy and security concerns established by statute or regulation, access to textual records may be restricted until records are reviewed and material of concern is redacted, usually under provisions of the Freedom of Information Act (FOIA).

Generally at this location, copies of textual records are made by staff for a fee. However, under supervised and controlled circumstances, researchers are allowed to photocopy or scan letter- and legal-size records. Microfilm may be copied, without restriction, for a fee. Copies of records, either scanned or photocopied, can be provided, except as indicated above. Arrangements also can be made through a vendor for the creation of prints or copy negatives of photographs.

Print, text and microfilm records used in published works of various types by researchers, video or other media, photos used in video and scanned images in CDs by researchers are materials being produced. Under agreement, the Genealogical Society of Utah is allowed to microfilm textual records and soon may scan records.

Records are not copyrighted, but the works in which they appear can be. NARA provides a publication, "Citing Records in the National Archives of the United States," which provides suggestions for referring to National Archives records, so that other researchers can locate the records if they wish.

Recorded Sound Reference Center

Madison Building
Library of Congress
Washington, D.C.
Karen Fishman, Librarian
December 28, 2004

The Recorded Sound Reference Center provides access to the commercial and archival audio holdings of the Library of Congress. The collection dates from 1926, when Victor Records donated over 400 discs to the Library's Music Division to supplement its print and manuscript holdings. In the custody of the Motion Picture Broadcasting and Recorded Sound Division since 1978, the collection has grown to include over two million items encompassing audio formats from cylinders to CDs. The holdings complement the field recordings of the American Folklife Center and the moving image collections served (?) in the Motion Picture and Television Reading Room (www.loc.gov/rr/record).

The Library of Congress holds the nation's largest public collection of sound recordings (music and spoken word) and radio broadcasts, some 2.5 million recordings in all. Recordings represent over 110 years of sound recording history in nearly every sound recording format and cover a wide range of subjects and genres in considerable depth and breadth.

The collection includes over 500,000 LPs; 450,000 78-rpm discs; over 500,000 unpublished discs; 200,000 compact discs; 175,000 tape reels; 150,000 45-rpm discs; and 75,000 cassettes. Among the unusual formats in the collection are wires, instantaneous discs, cylinders, music box discs, rolls, bands, dictabelts, and Memovox discs. The Collection includes most musical genres with particular strength in opera, chamber music, folk, jazz, musical theater, popular and classical. The entire collection measures 2.5 million cu ft. There is some Native American language material, but the amount is unknown.

Their preservation method is to transfer audio to tape or CD from the original format. They have cold storage for audio materials.

There are three full-time reference librarians. There is a research room: The Recorded Sound Reference Center, located in the Madison Building of the Library of Congress. See the web page at www.loc.gov/rr/record/rechrs.html. There are two online catalogs: the LOC main catalog at http://catalog.log.gov and SONIC at www.loc.gov/rr/record. They have also subject files for researchers, books and archival collections at the Center.

Listening facilities, available without charge, are provided for those doing research of a specific nature, leading toward a publicly available work, such as a publication, thesis or dissertation, radio/film/television production or public performance. Scholars wishing to hear recordings must register at the Recorded Sound Reference Center as users of rare materials and present their Library of Congress Reader Registration Card (www.loc.gov/rr/record/recguidelines.html). The catalog and material are open to anyone. The catalog can be searched from home or the Library of Congress. Researchers must have written permission from rights holders before staff will make a copy for them. See their web page at www.loc.gov/rr/record/audiodup.html.

STATE, PRIVATE AND INTERNATIONAL REPOSITORIES:

The Academy of Motion Picture Arts and Sciences, American Museum of Natural History, The American Philosophical Society, Bishop Museum, The Field Museum, Hawaii – The Archives of Hawaii, Linguistic Society of America, Microsoft Corporation, Museum of Northern Arizona, National Hispanic Cultural Center, The Newberry Library, New Mexico State Archives, The Southwest Museum, United Nations, Walt Disney Company and the Wheelwright Museum of the American Indian

The Academy of Motion Picture Arts and Sciences

Los Angeles, CA
Fritz Herzog, Archivist
December 2, 2004

The Academy archive contains only film. They can generate an exact count of the number of items in their database, but only an estimate of the amount of material in their holding areas. Generally, they track the number of units (containers) in which each item is stored. A container can be anything from a 70 mm film can to a DAT tape or DVD case. With preservation material, they also keep track of the footage in each container. They have well over 80,000 items (separate containers) in their inventoried vaults, with an estimated 40,000 or more additional items in their holding areas.

The building is a former television studio. They have two former studio sound stages that have been converted to film storage vaults. The smaller one, for preservation material, is 2,500 square feet on two levels, for a total of 5,000 square feet The larger vault, for general purpose archival storage, is about 3,000 square feet on three levels, for a total of 9,000 square feet of floor space. The height of the racks on each level of both of the vaults is about 10 ft. In addition, they have a temperature controlled holding area with three tiers of pallet racking, which has about 2,000 square feet of floor space. They also have two 8,500 square feet former sound stages, with 30 ft. ceilings that are for future development as vaults.

They use a bar-coding system to keep track of the material as it goes through the accessioning and inspection process. The film is inspected and put into new plastic containers, which are vented to allow air to get under the film and circulate and the gas to escape. In the old metal containers, the film off-gassed and the gasses built up inside and accelerated the deterioration of the film.

Inventory staff members identify the film, note the condition, and enter the information into the database. Preservation work is generally inspection and minor repair. No conservation is done to the film there. If it goes out for screening, it is inspected carefully. If it needs any conservation, the lab work is done off site. To make full preservation of a feature film, you get all of the existing materials you can, especially the older ones, examine it all, find the best elements and make recommendations to whomever is funding the preservation. The Academy loans to museums and other institutions, but not for commercial purposes. The permanent storage area is kept at 50-55E F / 30% RH. There is a preservation workroom with an air filtration system, which has positive airflow to keep dust from settling on material. There is also special hooded equipment that sucks the gasses out for film that out-gasses.

Currently, they have 26 full-time archivists, one part-timer and six student interns. They have always been open to serious researchers. Last year, they hired a new Public Access Coordinator to be in charge of their Public Access Center. Researchers can make an appointment during regular business hours to view materials in their collections. Copyright remains with the current rights holder(s) of donated materials, unless it is given to the Academy along with the donation. When ownership is turned over to the archive, a legal document must be signed by both parties stipulating the ownership and use(s) of the materials. The main item in their holdings that the Academy owns the rights to is, of course, the Academy Awards Show, which is produced by the Academy. They also have been given rights to some donated documentaries and home movies in their collection.

American Museum of Natural History – Archives

Central Park West at 79th St.
New York, NY 10024
Kristen Mable, Registrar for Archives & Loans/Anthropology
September 7, 2004

The Museum and Library were founded in 1869. The entire collection is 670 linear feet. The Native American material is approximately 40% of the entire collection, and can be found in the collections of Alfred Tozzer and Pliny Goddard, among others. There are approximately 2,500 sound recordings (1900-1935), primarily from North American Indians and Indigenous Peoples of Siberia, which are housed in the Archives of Traditional Music, Indiana University. The paper collection comprises 75% of the collection; photographic material, 20%; and audio, 5%.

All materials are stored in archivally stable enclosures. Several collections have been scanned and are available digitally, primarily to limit handling, but also to provide the widest access. The storage is not temperature or humidity controlled at the present time, but there is constant monitoring of temperature and humidity using a hygrothermograph.

There is no research guide. There are no data ports or extra computers for researchers. Laptops are allowed and occasionally scanners; if the researcher obtains permission. Researchers must use pencils and cotton gloves when handling photographs. There is one full-time and one part-time staff and several volunteers and interns.

The large windows in the archive storage/research room pose a problem. Blinds are kept down at all times. All archival materials are stored in boxes out of direct light. There is an air conditioner used to moderate the temperature. All archival materials are stored in cabinets, which are raised off the floor on bases. Good housekeeping has prevented many problems. The Archives is on an upper floor, which precludes any flooding problems.

They allow anyone to examine the materials. They require all visiting researchers to fill out an application prior to their visit, in order to be approved by the appropriate curator. All graduate students must submit a letter from their advisor discussing and approving the students' specific projects. The majority of the researchers are affiliated with other institutions, but they also have quite a few students, Native American groups and individuals researching a topic for possible publication.

Photocopied material is made available for research purposes only. Clearance for any other use, including publication, electronic transmission, general distribution or commercial use must be secured from the Division by submitting a written request to the Chairman.

The American Philosophical Society

105 S Fifth St
Philadelphia, PA 19106
Dr. Robert Cox, Manuscripts Librarian
www.amphilsoc.org
September 3, 2004

The American Philosophical Society was founded in 1743 by Ben Franklin and John Bartram. The Society lasted only a few years, but was revived in the 1750s in three separate organizations, which merged together in 1769 to form the modern APS. Since about the 1780s, the APS has focused on collecting "Indian things." However, this mission actually goes back to 1743, because Franklin said that Native inhabitants of the country were objects of interest for the APS. Their first major collecting interest came from Thomas Jefferson, who was trying to accumulate vocabularies of Indian languages for comparative

purposes. The vocabularies are still at APS, some in Jefferson's own hand. Jefferson's idea in gathering the languages was to use historical linguistic methods to build a history of Native Peoples in America.

APS has a large number of collections primarily collected by Native American linguists and non-linguists. Major collections are those of Franz Boas, Floyd Glenn Lounsbury, Mary Rosamond Haas, Frank Siebert, James M. Crawford and probably two or three dozen more. The largest single collection brought in, thanks primarily to Franz Boas, is the records of the American Council of Learned Societies Committee on Native Americans. There are some 150-200 languages in that collection. The Society has since added to this collection Pliny Earle Goddard's field notes on Athabaskan languages, which he studied from 1906-09 in California, and Edward Sapir's notes on the Navajo and other Sapir material. Major Native American collections are the papers of Ely Samuel Parker, a sachem of the Senecas, and the papers of Joseph Laurent (Abanaki).

The APS also has sound recordings and visual materials. The total collection is around 8000 linear ft.; the Native American material is around 1000 linear ft. There are several hundred hours of sound recordings, almost all Native American, 250 numbered entries, but one number could mean 10 or 15 tapes or more. Suzanne Wash (UC-Santa Barbara) has sent around 100 tapes on the Sierra Miwok and vast hours of videotaping.

The APS website is the primary information tool for collections and the best place to go for the two Indian guides (published in 1966 and 1985), which are fully available there, as are the finding aids for many of the collections.

They provide a good, secure, clean environment; acid free folders and housing; climate controlled rooms. It is a 50-year-old building, but in good condition. As for the audiotapes, a few years ago they took all of the old recordings and converted them to DAT tapes. They are now trying to move those over to a more mobile, digital form–wav format on DVD or CD.

The APS also has extensive printed materials on Indian languages, so there are two full-time book curators; one is a cataloguer and one a reference person. In the manuscript department there are three full-time employees and three full-time grant employees, several volunteers and other professionals. All work with all materials. They allow anyone to examine their materials and follow the standard copyright restrictions; the staff tell patrons they can provide the materials, but cannot give the researcher permission to publish it. The creator of the material is automatically cited as the author. They follow conditions imposed by copyright or donor on the material. They do photocopying or reproduction of a CD or DVD and charge only enough to recoup the costs.

Bishop Museum – Archives and Library

1525 Bernice Street
Honolulu HI 96817-2704
DeSoto Brown, Collections Manager
808-848-4183
www.bishopmuseum.org
October 6, 2004

The Bishop Museum was founded in 1880. Its list of legacy material includes the "Hawaiian Ethnological Notes" (HEN), a collection of thousands of pages of original writings published in the Hawaiian Language. It is composed of articles on the Hawaiian culture printed in the early Hawaiian newspapers. These articles have been translated and/or summarized and used as teaching material. The HEN also contains "Kahuna Lore" – a section on the kahuna, who is a skilled professional in spiritual and physical arts, canoe building and magic. The "Legends" section has more than 1,000 pages, making it their second largest collection. The "Mele" Hawaiian Songs section holds over 1,000 pages in the collection.

Additionally, the HEN section is devoted to general items on Hawaiian culture which were printed during the period of 1838-1940. Some of those topics are: agriculture, chants, culture, canoes, clothing, food, fishing heiau (Native temples), history, hula, legends, lore, material culture, mele, medicine, music, navigation, omens, persons, places, place-names, plants, political structure, prayers, religion, social structure and sorcery. Eighteen different Hawaiian Language newspapers were used in this collection.

The Museum's book collection contains 50,000 volumes on cultural and natural history of Hawaii and the Pacific Islands, including works pertaining to anthropology, biology, entomology, music and zoology. The primary source database contains diaries, narratives and memoirs relating to the 18th and 19th century Hawai'i. The database is indexed and stored chronologically, and arranged in binders. There are newspapers in English, Hawaiian and Japanese, reflecting the Indigenous and immigrant population of Hawaii. The newspapers are available in microfilm/microfiche for researchers and patrons. Photographs of Hawaii and the Pacific numbering over one million date back to 1840 and continue into the present.

The archives and library are housed on the second floor of the Museum. The holdings of the library are listed as 2,500 linear feet; archival holdings are 3,500 linear feet. Of that collection, 10% is designated as Native American/Hawaiian. Newspapers are listed as 500; manuscripts at 200; books pertaining to linguistic material at 200; and audio recordings at 300. There are special collections of rare books and manuscripts with emphasis on Hawaiiana, works of art on paper, a map collection and a historic photograph collection.

One of the major problems within the Pacific area is the growth of mold in the library and archive collections, due to high humidity. A relative humidity of 50-55% is considered ideal for storage here. This facility is air-conditioned and dehumidified. Storage areas within the building are all monitored for pest, temperature and humidity control.

The Field Museum – Archives

1400 S Lake Shore Dr
Chicago, IL 60605
Armand D. Esai, Archivist
July 29, 2004

The Field Museum was founded in Chicago after the Columbian Exposition of 1893, and the archives started informally shortly thereafter. It wasn't until 1995 that the Museum established a formal Archives. There are primarily accession records and a few records on the anthropology expeditions conducted by the Museum, but minimal anthropology material. The Archives does not presently take in collections from outside donors.

The Archives is open to all researchers by appointment. Researchers need review and approval from the Anthropology Department to access those records. Archival patrons use the library reading room, which can accommodate 15 researchers at one time. There is no written guide for the archival material. Potential researchers undergo a reference and research interview. Finding aids are available for selected materials and researchers may occasionally consult the archives inventory box list. Researchers must contact the Archivist by phone or email for information or an appointment. They are presently developing a patron of the archives program and an Archives website. There is one staff member

The size of the entire collection is 2,500 linear feet; the Native American collection is 120 linear feet; and the linguistic material is less than one linear foot. Paper comprises 90% of the collection; photographs, 5%; audio, 1%; video, 3%; and microfilm/microfiche, 1%.

The Museum's Native American language material is at Indiana University at Bloomington. This material contains original wax cylinders and recordings from different expositions conducted all around the world. It still officially belongs to the Field Museum, but is on permanent loan to the University. There is a contract agreement and the Museum has received copies of some of the material over the last 15 years.

The library has some written language material.

Preservation is largely relegated to assuring that the material is contained in archival safe storage boxes and folders. Fragile material is encapsulated in Mylar and provided with structural support. They have two climate controlled storage facilities available for library special collections. These facilities are maintained by HVAC units at +/-65E F and +/- 45% RH for the library rare book room and +/- 65E F and +/- 30 to 40% RH for the photographic collections. The Archives has no HVAC unit. The temperature ranges from +/-5 from 60E F and +/-10 of 55% RH. Although the temperature is not directly controlled it remains generally stable through the year. Because the Archives is located on the fourth floor, flooding is not a factor.

The author of the material is the copyright owner and s/he retains all rights, unless there has been a written transfer of rights. The Archives inventory is available to approved researchers. It is not available for public dissemination or distribution. Finding aids are available to researchers and may be reproduced. Physical access is strictly controlled and monitored. No material may be copied without the Archivist's review and approval. Permission to view certain material is subject to the nature of material, especially pertaining to cultural sensitivity issues, and in some cases tribal permissions are needed. Use is relegated to "fair use" if it does not conflict with cultural sensitivity/awareness issues. There are only general copy production costs charged to researchers. Material is never reproduced in whole for sale. Finding aids are the only media produced by the archives. Copyright is by production, not registration. Field notes and other archival records usually were/are credited to the associated curator. Recent discoveries on the production of some of this material are leading the archives to include key informants or field assistants as authors when they are responsible for generating a large or significant contribution to the record.

Hawaii – The Archives of Hawaii

State of Hawaii
Iolani Palace Grounds
Honolulu HI 96813
808-586-0320
Historical Records Branch
Luella H. Kurkjian, Chief
October 7, 2004

The Archives of Hawaii were founded in the 19th Century, during the period of the Kingdom of Hawaii. Presently, it is a part of the State government and is a repository for all the activities and records management of Hawaiian affairs, past and present.

The collections here are made up of government records, from the monarchy to the current legislative sessions; private collections of individuals and organizations; and historic photographs, maps and library collections specializing in Hawaiian history, culture and voyages. The Native linguistic material amounts to 500 cubic feet. Of the collection, which does not include audio material, 95% is made up of paper; photographs are 2½%; and video/film and microfilm/microfiche each comprise ½%. The archives holds over 10,000 cubic feet of material within its collections, including:

Records of the Executive Branch: materials from 1840 to the present, including correspondence, reports, plans, registers, minutes, certificates and ledgers.

Records of the Legislative Branch: communications, minutes, journals, committee reports, testimonies, petitions and bills generated since 1840.

Judiciary Records: early 1800-1900 probate, divorce, criminal, civil, equity, law and admiralty case files, minutes, books and wills from 1847 to 1916.

Governor's Records: correspondence, speeches, press releases and proclamations of the chief executive of the territory and state from 1900 to 1990.

The other collections include over 470 collections of private papers, manuscripts and records documenting the social, economic, civic or political history of Hawaii: and a 9,000-volume library, which

includes government publications, pamphlets, the Captain Cook Memorial Collection and the Paul Markham Kahn Collection. There are over 100,000 photographs of Hawaiian people and places. The map collection has 1,800 maps of the area. There are 120 listed artifacts.

The archives are environmentally controlled at 65 degrees and F50 RH. The storage is controlled 24/7 by air-conditioning and dehumidifying. There are two vaults on two different levels of the building. The major problems are the rate of humidity and the rain that sometimes seeps through the roof. This may be due to the aging process of the building that houses the records and archives.

Linguistic Society of America

Columbia, MO
N. Louanna Furbee, Archivist
February 2, 2004
Email Survey

The Linguistic Society of America did not respond to survey questions about mission statement, collection policy or size of entire collection. They have no Native American material, including language material, at present. The archives consist of only paper collections, no other media. The collections are kept in the Western Historical Manuscript Collection (WHMC), Ellis Library, University of Missouri-Columbia, Columbia, Missouri, in inventoried boxes by category. The only research guide is that of the Western Historical Manuscript Collection. WHMC staff number about five full-time members. The LSA archivist is a volunteer position. They have no outreach programs.

Any reputable scholar can examine the catalog and the materials, and may copy materials. There are no conditions on examining the catalog, but there is a policy regarding the editorial papers of the editors of LANGUAGE, the journal published quarterly by the LSA. They do not sell copies of their materials. Print text is the only media being produced. Materials are produced by the LSA office employees, officers, and the editors of LANGUAGE. No materials are being copyrighted by the archives. The creator of the material is credited as the author of the material.

LSA Comments: The loss to humankind of genetic diversity in the linguistic world is arguably greater than even the loss of genetic diversity in the biological world, given that the structure of human language represents a considerable testimony to human intellectual achievement. The following recommendations, made by the LSA to academic departments which include linguistics are made for the sake of the future of linguistics, with the intent of enriching and preserving linguistics and, it is hoped, will not be viewed as dictating the details of program curricula.

The LSA recommends that linguistic departments support the documentation and analysis of the full diversity of the languages which survive in the world today, with the highest priority given to the many languages which are closest to becoming extinct, and also to those languages which represent the greatest diversity. By documentation, we mean primarily the recording (on audio or videotape) of a variety of textual styles and grammatical and lexical information from a variety of speakers of all ages. LSA recommends that this documentation be systematically preserved in a network of repositories which also regulate the availability of this documentation. Departments are encouraged to recognize that a language is a complex system of interfacing components; that the preparation of a grammar of a whole language is an intellectual achievement which requires considerable depth of skill and linguistic expertise; and that the informed collection and analysis of linguistic data is thus a fundamental and permanent contribution to the foundation of linguistics. We urge that this work continue to be recognized as deserving through the awarding of advanced degrees and through favorable hiring, promotion and/or tenure decisions.

Microsoft Corporation

205-108th Ave NE, Suite 400
Bellevue WA 98004
Enterprise Storage Division
Javier Calvillo, Technology Specialist
425-707-4415
jcalvill@miscrosoft.com
August 25, 2004

The Project Archivist was to have conducted a site visit at the Microsoft Corporation regarding state-of-the-art technology for Native languages archival repository. Instead, she met with a Technology Specialist, and reported the following, which could prove important for the institutions involved in this Project and for the reader of this Reference Guide: "Mr. Calvillo explained how Microsoft partners with other corporations in developing technology solutions for storage. He will arrange another meeting with other corporations in developing technology with those persons who work as the Microsoft Public Government Team in building an integrator to service a repository. At that time we will be given a clearer picture of what can be provided. They are excited about working with us to develop something that can work and move technology into the future. I feel we have made a workable connection and look forward to expanding this plan and acquire more answers as we progress."

National Hispanic Cultural Center

The Research and Literary Arts Program
History and Literary Arts
1701 4th Street, SW
Albuquerque, NM 87102
Samuel Sisneros, Senior Archivist
505-724-4752-tel. / 505-724-4778-fax
ssisneros@nhcc.state.nm.us
www.nhccnm.org
August 25, 2004

The National Hispanic Cultural Center Board is reviewing the Collection Policies for the archive collection and the Center has a mission statement. The archival repository is to permanently house rare books, photographs, maps and manuscript collections. It houses more than 300 rare books with a 100-volume Enciclopedia Heráldica y Genealógica; approximately 485 publications on Hispanic history and education; 500 visual materials; and approximately 200 cubic feet of documents. They include a number of private collections: the Margaret Buxton Collection; the Edmundo Delgado Collection; the Elizabeth Nelson Patrick Collection; the Ambassador Edward Romero Collection and the Hispanic Culture Foundation Collection. In addition, the archives have the Barelas Photo collection, the architectural drawings of the National Hispanic Cultural Center of New Mexico (NHCCNM) and a growing number of historical maps.

The Native American collection at the Research and Literacy Arts building has microfilms that relate to government and church records during the Spanish, Mexican and American territorial periods. These records may have ancestry ties to Native families in New Mexico and the southwest. Other Native materials maybe integrated in smaller private collections and media recordings, such as the "Colores" televisions programs. There is a small music collection of early Pueblo and Hispanic songs relating to the winter dances performed at Christmas and New Year.

The Archivist monitors the storage environment, uses acid-free archival boxes, folders and polyethylene sleeves for photographic materials. They use Mylar sheets for large maps, acid-free paper and digitizing their collections for the SQL database and CD-ROM. The storage area is sometimes used as a conservation lab for custom-made boxes, book covers and to encapsulate archive materials. The Archive

storage collection at the Research and Literacy Arts building is approximately 3,000 square feet, with a state-of-the-art museum facility. Storage provided is metal shelving, space saver units, flat storage cabinets and large custom-built cabinets used for supplies and work table. He did not discuss the type of security system in detail, but they have one in place. The archive storage is closed to public access. Appointments are required with the Archivist to view materials. The Center has one archivist to oversee the entire archive collections.

The Center has several outreach programs in areas of literature, media, performing arts, cultural and visual arts, educational programs, symposium, ecological and restoration projects. The Center opened Phase 1, in October 2000, along the Camino Real in the historic Barelas neighborhood of Albuquerque. They restored the Research and Literacy Arts building from a WPA Riverview Elementary School, which now holds the research library, a special collection or archives, an oral history listening room, a ballroom and the indoor/outdoor restaurant. The Intel Technology and Visual Arts Complex, also Phase 1, is the home to three large galleries, a technology classroom, gift shop and the Center's administration offices. In September 2004, the Center opened Phase II, the Roy E. Disney Center for the Performing Arts, which has three performing theaters, an auditorium, a broadcast studio and three large lobby areas for receptions. The El Gran Torreón will house the country's largest concave fresco by artist Frederico Vigil, which will take two to three years to complete. The Center represents the Hispanic, Latino, Spanish, Portuguese, Mexican and South American cultures of the world.

The Newberry Library

60 W Walton St
Chicago IL 60610
John Aubrey, Archivist/Librarian
July 27, 2004

The Newberry Library is a privately funded research library. This is a library which holds special collections. "Special collections" usually refers to a library's archival holdings.

The library has approximately 1,600,000 books. The Ayer collection has about 140,000 books. There are also manuscripts and about 300 - 400 microfilms. The library holds approximately 5400 linear feet of archival material, 2500 of which is Native American material, and 45 linear feet of which is linguistic material. The collection consists primarily of books, with a few photostats, 80 titles on microfiche, a good amount of microfilm, and a few color slides of linguistic material. There is no linguistic audio material, no film, and no cylinders. There are nine floors of limited access, climate controlled stacks.

The Newberry is a non-circulating library. Use of book cradles, felt, and gloves is requested for the more fragile materials; and clients are asked not to finger material. Filming and scanning by the public is not allowed, however, they do allow laptops. Staff will photocopy for clients.

The Indian material is primarily found in the Edward E. Ayer Collection. A very small percentage of the manuscript papers in the Newberry are linguistic material. A Chicago man named Volkl collected language material on place names and Indian plant names. The Evans collection has some linguistic material almost entirely on film. The general collection library of the Newberry has some Indian material, some tribal roles.

All of the material added since 1979 is online and available through the Newberry website (www.newberry.org). They have added South and Meso American, Northern American, Canadian, Inuit, Aleut, and other Alaskan groups. The materials are partly catalogued in the 16 volumes of the Ayer Collection, published by G.K. Hall, and listed under "Indians of North America–languages," or by group name, e.g., Dakota, Lakota, etc. There is also some linguistic material from the west in the Everett D. Graff Collection, and material on the Alaska and Northwest provinces from the Jesuit archives in Spokane.

There are 3-1/2 bibliographers (1/2 because one person works on different collections), paging staff of 5 or 6, a couple of curators, and staff for copying and ordering.

The library uses the Internet, hosts conferences and workshops, works with Indian colleges, and publishes books (on proceedings, etc.). The library follows the standard Library of Congress copyright laws.

New Mexico State Archives

New Mexico Commission of Public Records
State Records Center and Archives (SRCA)
Daphne Arnaiz-Deleon, CA, Archives and Historical Services Division Director
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July 19, 2004

The Archives and Historical Services Division's mission is to maintain, preserve and make available to the public the permanent records of New Mexico government. Permanent records are added to archival collections by State agencies or through the donation of acceptable materials. Consultation and research assistance are provided to State agencies, businesses and the general public. Archival documents are used to support the operations of government agencies, social services and the judicial system. Archives help also to support scholarly studies, document citizenship and family histories and resolve land and water issues. See, New Mexico Commission of Public Records, State Records Center and Archives, Title 1: General Government Administration, Chapter 13: Public Records, Part II: Access to Public Records and Research in the New Mexico Archives; Part 2: Fees; and Part 40: Private Collection Development Policy.

The New Mexico State Records Center and Archives (SRCA) building opened in 1998. It accommodates the New Mexico State Library, the Commission of Public Records, the Records Management, Genealogy Room and conference rooms. The SCRA archival collection is located in the basement and consists of 23,000 linear feet of manuscripts, journals, ledgers, maps and photographs and approximately 4,000 to 5,000 linear feet of sound recordings, film and video. SRCA places major emphasis on acquiring archival collections relating to any of the following subjects, geographical areas, and chronological periods: Administrative government Documents, 1598-1959; Military Documents, 1598-1912; Civil Documents, 1598-1912; Ecclesiastical Documents, 1598-1846; County Documents, 1850-1912; Judicial Documents, 1598-1912; Personal Papers of New Mexico Legislators, and U.S. Congressman, 1850-2003; Maps, 1598-1950; Photographs, 1840-1950; Motion Picture Film, various.

SRCA's Native American collection pertains to the New Mexico tribes and the southwest region. They consider the Native American collection size to be small and imply that some of the materials are integrated with the Spanish or personal records. Archival materials on Native American language in the SRCA collection includes a small collection of film, some audio recordings and a variation of records associated with the Spanish collection. The Native language collection primarily focuses on Pueblos, Navajo and Apache tribes of New Mexico.

The SRCA archival collections consist of 23,000 cubic feet of paper, 900,000 photographs, 5,000 reels of film and video, 17,000 audio/magnetic tapes, 15,000 microfilm tapes, 50 sheets of microfiche, 2,000 maps and 2,000 linear feet of other research materials. SRCA has a 900-square foot conservation lab to provide custom preservation treatments for materials in the archive collection. All records and documents are stored in acid-free folders and boxes. Ledgers and books have custom-made covers and photographs are stored in polypropylene or Mylar sleeves. The rare and historical materials with the sound recordings and negatives are stored in a vault or cold storage room. Because the storage is in the basement of the

building, staff monitors for pests and environmental concerns. A set of collections records are stored at an off-site facility.

The size of SRCA collection storage for archival materials is 165' length x 95' width x 13'7" height. Within this storage is an enclosed, fireproof, cold storage walk-in vault room that is 15,725 square feet. All storage areas are climate-controlled with surveillance cameras, motion detectors and a water cord sensor that surrounds the inside wall of the large storage room. They have several units of metal shelving and Space savers. SR storage is at approximately 50 to 60% capacity. The SRCA reference room, microfilm, and genealogy rooms have about 2,000 linear feet of reference materials for public access and can accommodate several researchers at one time. In the main lobby, there are showcases to display SCRA's archival materials. Patrons are required to place coats and personal items in a locker before entering the reference room. Patrons must sign in, go through an electronic gate, wear cotton gloves and use a pencil when handling materials. Two to four reference people assist researchers. Reference personnel are required to assist when patrons handle fragile or sensitive materials. The reference area has camera surveillance, two public computers and eight microfilm machines.

The Archives and Historical Services Division has a permanent staff of nine -- the Archivist and one-term full time equivalents (FTE), with five volunteers and student interns for each semester -- overseen by the Records Management Division which is one of four divisions under the Commission of Public Records (CPR). The CPR is run by an appointed State Records Administrator who manages the activities of the agency and directs a staff of 35. CPR members represent various interests in public records. The CPR is composed of three elected officials, a member of the executive, a member of the judiciary and one historian from the private sector. The CPR is organized into four divisions with its own staff team.

SCRA outreach programs involve online catalogue of collections which links to other government organizations, hosting annual symposia and offering archival and records management training workshops. SCRA offers copying to researchers for a small fee.

After the building was completed in May 1989, the staff realized that water came into the building as snow melted and during the rainy seasons. The front entrance slopes downward and water was coming in through the front doors. The back stairs did not have any drainage for water to drain out, so it went under the door. The front and back doors have been repaired. The building is located near an arroyo and staff have prepared an emergency response plan in case the river bank overflows.

The New Mexico State Records Center and Archives has a large spacious storage area and state-of-the-art facility and a support team that is cooperative and knowledgeable about archival methods and techniques. They offer training workshops for Archives and Records Management, emergency assistance for institutions and individuals with damaged paper-based collections, and offer advice if disaster occurs. SCRA also supplies archival storage materials for lower prices to New Mexico institutions that have limited budgets and need assistance in purchasing quality archival materials for their collections. Some of their training workshops and scholarships may be discontinued because of federal budget cuts.

The Southwest Museum Library

Autry National Center
Los Angeles, CA
Kim Walters, Associate Director
December 3, 2004

The Library started with the early founding of the Southwest Museum in 1907 with a bequest from Founder Charles Lummis, but it is named the Braun Research Library after a board member who donated the funds to build the building. The Library has 50,000-60,000 books primarily on the subject of Native American art, history and culture from Alaska to Terra del Fuego. The Southwest Museum merged two years ago with the Autry Museum to form the Autry National Center.

Sound recordings count about 3,000 in a variety of formats. About half of 990 wax cylinders are Native American recordings, the earliest of which date to the mid-1890s. Frances Densmore did recordings for the Museum in the 1930s-1940s of Cheyenne, Arapaho, Santa Clara and Maidu people. The Native American language material is strongest in California, but there are some Southwest materials. The language material consists of books, early publications, mostly missionary, and bibles; an 1860s book done on Salinan language by a priest; language tapes; aluminum disks of California Luiseño songs done in the early 1930s; and Walter McClintock recordings of the Blackfeet in Montana from the 1890s to 1900s.

The archives has about 850-900 individual manuscript collections. There is the George Bird Grinnell collection primarily dealing with the work that he did with the Plains tribes. They also have the Frank Hamilton Cushing and Frederick Webb Hodge papers (catalogued and accessible online at the Autry National Center website). Those two collections along with the Lummis correspondence series and journal series are also available on microfilm. They have the Alanson Skinner papers, his photo albums on the Seminoles, the Menomini and the Winnebago; some fieldnotes of Mark Harrington; some anthropology papers from Alaska; and some Catholic records/baptismal books from New Mexico.

The collection has 3,000 historic maps. The photograph collection consists of two early photos dating to the 1850s and the core collection, from the 1880s to 1920s. They have cataloged on the computer 147,000 images, more than half of which are Native American subjects. There are probably another 40,000 images not cataloged. The vertical file is a collection of newspaper clippings and ephemera from the early 1900s. They have Gladys Knight Harris's films; 3,000 works of art on paper, many of Native American subjects; and Edith Scott Feniers (Pasadena History Museum) ledger art books of Alan Wolf and Joe Tom.

The ceiling leaks once in a while; the shelves are covered with plastic sheeting. When the HVAC system works, it works well. The humidifier does not work well; it gets too dry sometimes. Temperature is kept at 68E F and RH below 40. They have off-site cold storage where the nitrate negatives are stored. They have a website and a friends group. The *Guide to Anthropological Collections* (University of Illinois) has a general description of the archives collections. Some collections have finding aids. There is one full-time staff member and one part-time staff member, who work two days a week. When possible, they make photocopies, copies of sound recordings prints of photographs. They do not have a way to make digital copies at present, but are moving toward that through grants. They have converted about 12,000 of the nitrate negatives into film positive and catalogued them on the computer. They charge for photocopies of the material.

They do not claim copyright to much of the material. If they know the copyright holder, they will tell the researcher, but always leave it up to the researcher to find out. Almost anyone can examine the material, but it goes back to the wish of the tribes. They consult with the Native Peoples on projects to be sure they respect their rights, and they will restrict culturally sensitive material.

United Nations -- Archives and Records Management Section

304 E 45th St.
New York, NY 10017
Angela Schiwy, Chief, Archives & Records Center
& Marlene Buelinckx, Assistant
September 8, 2004

The collections in the United Nations archives span 106 years. The records management function of the UN archives is organizationally linked with the archives function and has grown to be the larger of the two. The Archives & Records Management Section (ARMS) staff is responsible for the custody, preservation of and accessibility to numerous historical, legal and evidential archives documenting the

activities and development of the United Nations. They are also involved in all aspects of record keeping, ranging from measures to assure that UN officials create records in the course of their duties, to the management of records in UN offices, to preserving and making records of continuing value accessible as UN archives.

The size of the archival records is approximately 20,000 linear ft. Paper comprises 99% of the holdings, and photographic material, audio, video, digital and microfilm, etc., less than 1%. Of this, there is no North Native American material.

They follow the standard preservation methods: acid-free folders and boxes; use of proper size boxes; removal of paper clips and staples; sleeves for photographs, etc. They are also planning to put in place a Disaster Preparedness Plan. There are two storage facilities with temperature and humidity control (68E F, 50% RH). There is no cold storage. There are facility-related problem areas. They are presently establishing a long-term monitoring and measurement program, in order to document some of the problems. There are two facilities, one in Manhattan and one in Queens. Each has a research room which includes tables and a microfilm reader/printer. Both facilities can accommodate eight researchers at one time. They provide offsite and onsite reference services for all citizens of all member states of the United Nations, as well as non-UN researchers. But a large part of their reference service is spent on assisting with internal requests. The staff count is: Chief and Assistant (2); Records Information Systems Unit (10); and Archives & Records Center (7). Also, consultants are hired to work on projects.

The UN has provided clear guidance on access and declassification policies. There are written instructions for staff on how to document restrictions on the records themselves and in the finding aids. ARMS produced one concise guide several years ago and several thematic guides for wider distribution. About 10 years ago, RLIN (Research Libraries Information Network) prepared summaries of the record groups held by ARMS and added those descriptions to their online database of archival holdings throughout North America. A version is on the ARMS website. ARMS plans to launch its own archival descriptions on the ARMS website by next year.

There is no policy on copyright. The vast majority of the holdings are produced by the parent organization itself. For the rest, the rights are held by the individuals who are producers of the material. There are no conditions on the use of the finding aids in the archives, with the exception of a couple of highly sensitive record groups which are not available for perusal. Anyone can use the records, subject to making an appointment and submitting the registration form ahead of time. There are confidentiality restrictions on some of the records, as determined by the office of origin and previously explained under “Reference.” Staff will copy unrestricted material for all researchers. Scanning of unrestricted material is also permitted. Researchers may request reproductions of those photographs copyrighted by the UN. They do not sell copies of the materials, other than those specific items which are requested for research purposes. No media are being produced and no materials are being copyrighted.

Walt Disney Company – Archives

Los Angeles, CA
Dave Smith, Archives Director
November 9, 2004

The size of the entire collection is about 10,000 square feet. They say there are no Native American materials in their collection.

The archives consist of paper (75%), photographic material (20%), audio (2%) and video (3%). They follow the usual preservation methods: temperature and humidity controls; acid free storage folders and boxes, etc. They have a cold room for storage of color transparencies and negatives.

The reference room consists of two tables seating about eight people total, restricted to Disney company employees, and a separate audio visual room with equipment for playing various media. There are nine staff members.

The archives do not have a research guide, but it does have a general brochure. There is an archives website on the company Intranet for the staff; and archive elements on the Disney Internet site (http://disney.go.com/vault/archives/today.html).

There have been no problems encountered in their particular environment.

All Disney materials are copyrighted. They follow the general copyright laws and have no special policy of their own. Only Disney employees are allowed to access the archival materials. Occasionally they will make a few photocopies for someone outside the company. They do not sell copies of their materials.

Wheelwright Museum of the American Indian

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Cheri Falkenstien Doyle, Curator
Mary Katherine Ellis, Collections Manager
July 21, 2004

The mission of the Wheelwright Museum of the American Indian is to respect and support the traditions, attitudes and creative expressions of Native Americans of New Mexico and the broader Southwest; to collect and document their contemporary expressions; and to present exhibitions and other public programs relating to them. The Wheelwright stores its collections in three buildings, the Main Gallery and Museum, the Guest House and the Research Center. The permanent and archive collections consist of contemporary and historic materials from the Southwest with an influence on Navajo culture. The staff are updating their catalogues and data entry and re-housing their collections, with conservation treatment if needed for archival materials. At this time, staff was unable to determine the size of their permanent and archival collections.

The Wheelwright's Native American collections primarily focus on Native Americans in the Southwest, particularly, Navajo Nation, Rio Grande Pueblos, Apaches, Utes, Hopi, Zuni and Native nations in Oklahoma. The Museum continues to collect materials on Navajo arts and culture and commissions New Mexico's Rio Grande Pueblos to weave contemporary Pueblo textiles for the Kate Peck Kent Collection. The collection is predominantly Native American arts and culture; 1% is non-Native materials. The Archive Collection relates to the study of Native Americans and consists of manuscripts, journals, books, photographs, sound recordings (several original wax cylinders), film, and transcriptions of Navajo ceremonies.

The Museum's archive is being catalogued and is approximated to be: 90% paper documents, 5% of photographic materials, 5% visual materials and an undetermined amount of sound recordings. They intend to convert the sound recordings including the large collection of wax cylinders into another media. The Museum has several sound recordings on Navajo chants and songs, oral histories or stories. At present, a majority of the recordings are not identified and are not accessible to the public. The Navajo language materials were collected in the early 1900's, when Mary Cabot Wheelwright and her companion, Hastiin Klah, a Navajo medicine man, traveled on the Navajo reservation to document their ceremonial chants, songs, oral histories, culture and lifestyle through recordings, film and drawings.

The Museum archive collections in general focus on the Southwest, particularly the New Mexico tribes which include Navajo, the Rio Grande Pueblos and some on Zuni culture. The archive materials contain autobiographies, records on the Trading Post era, Indian fairs and dances, sheep breeding lab reports,

subject files and several personal papers from an anthropologist who studied the Southwest. There may be manuscripts, correspondences, letters, photographs, sound recordings and films. The Museum has several original wax cylinders, which have not been identified and plans are having them migrate into better audio recordings.

The Museum hired a part-time Archivist and Conservator to oversee the process of the re-housing portions of the collection and to provide conservation needs for archival material needed. With the new addition of the Research Center, the Museum's new spacious work room is 15' x 20' x 11' high and climate controlled with UV lighting. This room contains large tables to examine and prepare remedial preservation care for the collection. They do have pest management control and in place.

The Archivist and Conservator are surveying the collection and recommending proper housing materials for archival quality enclosures, such as polypropylene sleeves, acid-free files, paper and boxes to protect the collection from air pollutants, deterioration and/or excessive handling of archive materials.

In 2000, the Research Center was completed with a resource library and reading room, work room for cataloging and conservation and a large walk-in vault storage, which is 37' x 35' x 11' high. The Archive and Permanent collection will be re-housed in the state-of-the-art climate controlled walk-in vault storage, with a central station alarm system, surveillance camera and an Energen system, a fire suppressant, where an energen gas discharges in the vault storage to replace the oxygen and puts out the fire. Most of the Museum uses the halon system.

The Museum staff consists of a Museum Director, Administrative Assistant; Museum Curator; Collections Manager; Exhibit Technician; Business Manager; Museum Shop Manager and Sales clerks; the Public Relations Director, Museum Education Coordinator and a part-time Archivist and Conservator to improve the conservation treatment of the archive collection. The Museum outreach programs consist of publication for their exhibitions and educational programs on Native American art and culture. They have a strong volunteer base of 150+, Friends of the Wheelwright Museums, who assist in the Museum events and programs. Interns are accepted for projects the Museum needs assistance with or major projects. The Museum publishes catalogues relating to their exhibitions of contemporary and historic Native American art with an emphasis on the Southwest. The Museum staff did not mention any problems.

In February of 2000, the Research Center was built, bringing the Museum additional storage space and protection for the collections. This facility is 7,000 square feet and consists of the Mary Cabot Wheelwright Library and reading room, a curator's office, a work room and new storage space for both the Archives and Collection. With the curators, archivist and conservator working on the inventory of the archives, they are providing custom storage treatment, conservation survey and data entry of the collection. They found a crate of original wax cylinders, which no one has inventoried and do not know what they contain. They intend to migrate them into another media for access. Their copyright policy is being developed as they continue with the archive inventory. At this time, researchers are being reviewed on a case by case basis.

Chapter Notes on "Where to Locate Resources in Selected Educational, Federal and Other Repositories"

Principal contributors to this Chapter's section on site visit and survey summaries are NMAI Project Archivists June Degnan (Yupik), Eunice Kahn (Navajo) and Gayle Yiotis (Pamunkey).

Principal contributors to the text review of this Chapter are NMAI Project Advisory Work Group Members Jennifer Dahle Harrison, Margaret Mauldin (Muscogee Creek) and Faith Spotted Eagle (Ihanktonwan Nakota); and NMAI Assistant Director for Public Programs Helen Maynor (Scheirbeck), Ed.D. (Lumbee), Project Director Suzan Shown Harjo (Cheyenne & Hodulgee Muscogee) and Project Team Member David Sanborn (Penobscot).

Chapter 7: What Does Preservation Cost?

Every aspect of language preservation costs something, except for the most important one: speaking in the heritage language you are trying to preserve. Speaking the language is free. A moment when a language is unspoken by anyone would come at incalculable costs to this and future generations.

This Chapter describes certain practical considerations and cost factors involved in building a language repository, joining a repository system or preserving languages materials with or without a repository. It is important to keep in mind that the information provided here is for use as a guideline and not as the final word in costs. Although there are some monetary cost estimates given in the following pages, these cannot be considered absolute or inclusive, for they can and will vary widely throughout the country.

For a physical repository, the costs of labor, for example, will differ significantly from one part of the country to another. The costs of materials will depend on whether they are local to the area or must be transported from an area a distance away. The costs of building a new building will be very different from the cost of renovating an existing building or part of an existing building, and start up costs will be much more than yearly maintenance costs. Even legal and building permit fees will vary.

For an electronic repository, web developers' fees will vary greatly; prices of software and other supplies will fluctuate from vendor to vendor; and equipment, personnel and Internet service providers will range from low-end to high-end. The budget provided on the next page illustrates only one set of costs for one kind of electronic repository a Native nation or community may wish to develop.

The brief section on legal expenses below is intended to suggest a low-cost, modest way of approaching basic legal aspects of preservation. The extensive section on preservation expenses at the conclusion of this Chapter details some specific costs, but focuses on categories of preservation activities -- such as copying and/or migration -- and such preservation items as supplies, equipment and materials.

LEGAL EXPENSES

If the language program is a tribal one, the program director should meet with the tribal attorney or legal department to find out what type of assistance would be available for the program's needs. This assistance could include, for example, assistance in determining the copyright ownership of materials the program wants to use, assistance in drafting consent forms, assistance in registering material for copyright or assistance in maintaining awareness of developments in copyright law.

If the language program needs to hire a lawyer separate from a tribal attorney, it is usually better to try to negotiate a flat fee arrangement. If the language program is near a law school, there may be supervised law clinic students workers available who could provide advice on a limited basis and assistance with forms and filings. Bear in mind that much legal information on copyright, including forms, is available free at www.copyright.gov.

An adequate collection of books for the program to have on hand would cost less than $200. Recommendations would be:

The Copyright Handbook: How to Protect & Use Written Works, by Stephen Fishman.
Currently in the 7th edition, available at nolo.com for around $30.

The Copyright Guide: A Friendly Handbook to Protecting and Profiting from Copyrights, by Lee Wilson.
Currently in the 3rd edition, Allsworth Press, around $30.

A Copyright Guide for Authors, by Robert E. Lee.
1995, Kent Press, currently available at Alibris.com for less than $20.

PHYSICAL REPOSITORY CHECKLIST OF TYPES OF EXPENSES

	New Building	Existing Building
Site Costs:		
Grading & Clearing	Yes	Possibly
Utilities Trenching:		
Water	Yes	Possibly
Sewer	Yes	No
Electrical	Yes	Possibly
Gas	Yes	No
Telephone	Yes	Possibly
Demolition	No	Yes
Consultant Costs:		
Architect	Yes	Yes
Engineers		
Structural	Yes	Yes
Mechanical	Yes	Yes
Electrical	Yes	Yes
Fire Safety	Yes	Yes
Labor Costs:		
Plumbers	Yes	Yes
Electricians	Yes	Yes
Carpenters, Rough/Finish	Yes	Yes
Roofers	Yes	Possibly
Masons	Yes	Possibly
Building materials-exterior:		
Sidewalks/Driveways	Yes	Possible Upgrade
Landscaping	Yes	Very Little
Exterior Wall Framing	Yes	Possible Upgrade
Roofing	Yes	Possible Upgrade
Doors/Windows	Yes	Possible Upgrade

	New Building	Existing Building
Building materials-interior: Walls Floors Windows Doors Interior Fixtures/Furnishings: Including wall and ceiling lights, furniture, carpeting, linoleum, tile, paint, storage cabinets, etc.	 Yes Yes Yes Yes Yes	 Possible Upgrade Possible Upgrade Possible Upgrade Possible Upgrade Yes
Plumbing systems (including Fire sprinkler system)	Yes	Possible Upgrade
Electrical systems (including telephone and burglar alarm systems)	Yes	Possible Upgrade
HVAC system	Yes	Yes
Cold room	Possibly	Possibly
Bathroom fixtures: Toilets Sinks	 Yes Yes	 Possible Upgrade Possible Upgrade
Kitchen fixtures: Sinks Appliances Cabinets	 Yes Yes Yes	 Possible Upgrade Possible Upgrade Possible Upgrade
Elevator (multi-floor building)	Possibly	Possibly
Utility Room: Furnaces HVAC equipment Electrical Panel(s) Telephone Panel	 Yes Yes Yes Yes	 Possibly Possibly Possibly Possibly
Building Permit Fees	Yes	Yes

Electronic Repository Expenses

Personnel		**Year 1 Costs**
Web Developer	45,000.00	
Content Specialist	30,000.00	
Technical Support/Content Specialist	30,000.00	
Sub Total		**105,000.00**
Fringe Benefits		**31,500.00**
Total Wages		**136,500.00**
Equipment		
Web Server	4,100.00	
Scanner	750.00	
Sound Recording Equipment		
Digital Recorder	1,100.00	
Sound Editing Software	50.00	
Digital Camera	700.00	
Digital Video Camera	2,900.00	
Workstation with DVD burner	2,200.00	
Total Equipment		**11,800.00**
Software		
Photo Shop	650.00	
Illustrator	500.00	
Studio MX	1,000.00	
Microsoft Office	500.00	
Total Software		**2,650.00**
Training Costs (2 sessions x 5 days per each)		**15,000.00**
Support Costs		**6,000.00**
Travel Costs		**9,000.00**
Connectivity Costs (DSL, Cable, High Performance)		
Supplies		**6,000.00**
Phone Costs		**6,000.00**
Subscription Costs		**500.00**
Consultant		**10,000.00**
Tape and Film Restoration		**2,000.00**
Research		**3,000.00**
TOTAL		**208,450.00**

PRESERVATION – EXPENSES AND TYPES OF EXPENSES

Actions which lessen or alleviate the physical and chemical deterioration of records and prevent the loss of informational content come under the heading of preservation. This can be done by maintaining the materials for use, either in their original physical form or in some other format. These activities include providing a stable environment for records of all media types, using safe handling and storage methods, duplicating unstable materials (e.g. nitrate film, thermofax) to a stable media, copying potentially fragile materials into a usable format (e.g. photocopying, microfilming or digitization), storing records in housing made from stable materials (e.g., acid-free folders and boxes), repairing documents to maintain their original format, establishing a pest control program, and instituting a disaster recovery plan which includes plans for emergency preparedness and response.[i]

Methods of Preserving, Copying and Migrating[ii]

In general a stable environment: 60-70 degrees F; 40-50% relative humidity (RH); with clean air and good circulation is desired. Avoid light, especially ultra violet (fluorescent and natural day light), high heat, and moisture (damp environments can result in mold growth or pest invasion).

Paper

Papers should be stored in the correct size enclosures (folder, box, portfolio, etc.) that will provide physical protection as well as protection from light and dust. The enclosure itself should be made of stable permanent quality materials that will not contribute to the document's deterioration. Look for paper pages that are made from a high-quality, non-acidic, lignin-free paper.

There are some modern paper-based materials (books and manuscripts) that become brittle and basically unusable within only a few decades of their creation.[iii] The primary reason modern books and other paper artifacts often deteriorate significantly within fifty to one hundred years is that they are acidic–a condition brought about largely by the introduction of alum-rosin compounds that were used as sizing agents in the paper.[iv] Yet paper made hundreds of years ago survives in nearly pristine condition. Paper-based materials that are more than 150 years old are in many cases in better shape than others that are less than 50 years old. Early papers were made from cotton and linen rags. Most early papers, especially those made up to the middle of the 19th century, are still strong and durable, especially if they were stored properly under conditions that were not overly warm or humid. Papers are also vulnerable to photolytic degradation (damage by light). Cotton papers owe their longevity mainly to the length of the fibers used in their manufacture. The shortest fibers are found in newsprint papers made from groundwood pulps; this pulp is made by the mechanical grinding of wood that is then made into paper without first purifying it chemically. Like cotton papers, alkaline papers can last indefinitely. Acids formed within the papers or those absorbed from the environment are neutralized before they have a chance to degrade the cellulose chains. Such papers often bear a permanence mark (an infinity symbol within a circle).[v]

Photographs

Exposure to visible and ultraviolet (UV) light is potentially damaging to photographs. Light can cause embrittlement, yellowing and color fading in prints and hand-colored surfaces. However, relative humidity is the single most important factor in preserving most photographic materials. Relative humidity levels above 60% will accelerate deterioration. Low and fluctuating humidity may also damage them. Temperature, not relative humidity, is the controlling factor in the stability of contemporary color photographs. The preservation of photographs, and all documents and artworks, depends on the storage environment and the storage enclosures. Many institutions have climate controlled storage rooms with purified air, kept at constant moderate or cool temperature (e.g., 65-70F) and moderate relative humidity (e.g., 35-50%). Some institutions even have cold vaults for certain types of media that are prone to deterioration, such as color photographs, negatives, slides, film and video.

If photographs are handled improperly, they can suffer irreparable damage, including tears, cracks, losses, abrasions, fingerprints, and stains. Avoid touching fragile photographic materials with bare hands; salts in human perspiration and oils on hands may damage surfaces. Wear clean, white cotton gloves when handling negatives and prints. Paper enclosures must be acid-free, lignin-free, and can be buffered (alkaline, pH 8.5) or unbuffered (neutral, pH 7). Storage materials must pass the ANSI Photographic Activity Test (PAT) which is noted in suppliers' catalogs. Buffered paper enclosures are recommended for brittle prints that have been mounted onto poor-quality secondary mounts and deteriorated film-base negatives. Buffered enclosures are not recommended for contemporary color materials. Paper enclosures are opaque, thus preventing unnecessary light exposure, porous, easy to label in pencil, and relatively inexpensive. Suitable plastic enclosures are uncoated polyester film (also called Mylar D or Mellinex 516), uncoated cellulose triacetate, polyethylene, and polypropylene. Note: Photographic emulsions may stick to the slick plastic surface at high relative humidity (RH); the RH must remain below 80% or do not use plastic enclosures. Plastic enclosures must not be used for glass plate, nitrate, or acetate-based negatives.[vi]

Digitizing photographs offers safe and easy access to the images. Digitized images are not considered a replacement for originals. Data (i.e., the images) can be lost when the storage media deteriorates; and software and hardware technology become rapidly obsolete, in some cases making retrieval of the images difficult if not impossible.

Since about 1990, the major photographic manufacturers have developed more stable dyes for color photographs, including the type of photographic paper used for snapshots. The good news is that these modern photographic prints will only fade a little over a lifetime, if kept in average conditions. When displayed in moderate light conditions, slight fading might occur in 25 to 50 years. Moderate light conditions do not include direct sunlight or bright spotlights. Prior to the mid-1980s, color photos faded dramatically in a few years when displayed even in moderate light, or after 10 to 20 years even when stored in boxes and albums. However, Kodachrome slides and transparencies always had stable dyes and will last decades with very little fading if they are not left in a projector for long periods. Even 60 year old Kodachrome slides look nearly unfaded. Cibachrome (now called Ilfochrome) photos always had good color dye stability also.[vii]

Film and Video

All film is subject to fading, particularly integral color positives produced since the early 1950s, such as Ektachrome®, Ansco®, or Agfa® can fade in less than ten years. As with all other materials, this fading–as well as other chemical and physical deterioration–is impossible to stop entirely. With proper care, handling and storage, the rate of deterioration can be slowed and the usable life of a film can be extended significantly, over several decades. Kodachrome®, made by Kodak around 1940, and mainly used for films sold to the home market (16mm, 8mm), has faded relatively little. Integral tri-pack reversal positive film, also used primarily in the home market, has faded far less than negative-positive film stocks used commercially since the early 1950s.

Nitrate film should be copied onto a new base before deterioration starts. Cans of nitrate film that have remained closed for some time should be opened in unconfined, well-ventilated spaces. If gases given off by decomposing nitrate-based film are trapped in a confined space– such as a sealed can–they can ignite at temperatures above 100 F. Nitrate film is highly flammable, ignites easily, and cannot be extinguished after burning has begun.[viii] First made in 1889, and used in the manufacture of most professional 35mm film up to 1951, cellulose nitrate became the first film support because it was the oldest known and best understood plastic.[ix]

Acetate film is also subject to continuous decomposition, especially if kept under poor storage conditions. Eventually acetate-based film will suffer from the so-called "vinegar syndrome," derived from the strong acetic acid smell the film emits as it deteriorates. One advantage acetate film has over nitrate film is that it is not truly flammable; if subjected to a flame it just smolders.[x] Most 16mm and virtually all 8mm film used by amateur and independent filmmakers is acetate or more properly cellulose acetate propionate or

cellulose triacetate. Acetate and polyester film is commonly called “safety” film because it does not have the combustible quality of nitrate film. All 16mm and 8mm film produced in the United States (as well as all 35mm film produced in the U.S. after 1951) is safety film.

Polyester film, also known as Mylar or Estar, was first introduced in the 1950s and in recent years has been increasingly popular for 16mm film negatives and prints. Polyester-based film is chemically more stable than nitrate and acetate film. Polyester is thinner than acetate film but much stronger and cannot be torn. It has greater chemical stability and is not subject to vinegar syndrome, giving it a typical lifespan at least ten times as long as acetate film. One of the main drawbacks of using polyester film is that it cannot be spliced with cement, so tape splices must be used (professionals use ultra-sonic splicers). Polyester film can often be identified by the Kodak brand name ESTAR found printed on the edge of the film.[xi] The emulsion layer on a nitrate and acetate film base can shrink over time. A polyester base does not shrink as much as an emulsion layer; however, there is a concern that expansion and contraction of the emulsion layer on a polyester base will eventually cause it to separate from the base.[xii]

There are crucial chemical differences between black-and- white and color film. In black-and-white films the image is made of silver metal particles. The silver image is very stable compared to other film components such as color dyes, and not likely to fade unless it is exposed to high humidity, contaminants or was improperly processed.[xiii] Although fading is less of a problem for black-and-white projection copies on acetate or polyester film base, deterioration can begin within little more than a decade. Storing them at the lowest possible constant humidity and temperature is recommended.[xiv]

Fresh film stored at normal conditions (70EF and 50% RH) will have an average lifespan of 40 to 50 years before significant signs of decay occur (e.g., vinegar syndrome and color dyes density loss). Reducing the temperature by 15 degrees Fahrenheit increases that number to 100-125 years. The recommended conditions for extended-term film storage are between 40-50 F and 20%-40% RH.[xv] Excessively dry air (below 20% RH) can lead to film becoming brittle, while damp conditions will compromise the benefits of cold temperature and invite mold growth. Good air circulation will help prevent mold growth, but mold is possible any time the RH remains above 70% for more than a few days. Rapid changes in either relative humidity or temperature should be avoided.[xvi]

Film should be stored in clean archival plastic, archivally treated metal cans, or new archival cardboard boxes. Archival cans and cores are made of an inert plastic that will not chemically react with the film. Archival metal cans are coated with an inert coating that is additionally rustproof. It is important that the can or box is not airtight, and should not be sealed unless stored in freezer. A closed can is fine, and will not be airtight. However, a can that is taped shut is not fine. Cold storage is the best for the chemical stability of the film and is discussed in the following sections. Films should be stored tails-out so you will have to rewind them before projecting. You should always inspect the film before projecting. The cans should be stored flat (horizontally), with nothing heavy stacked on top that would weigh down the lids and not allow air to circulate into the cans. It is acceptable to stack the cans on each other, but store nitrate cans only 2 high.[xvii]

Film should always be wound evenly, and never too tightly, with the emulsion side out. Metal film storage cans or plastic boxes should be uniform in size, stored flat, and never stacked more than twelve inches high. Never put paper or any other loose material in the film storage can or box. Decomposing nitrate film and acetate film suffering from the vinegar syndrome must always be stored separately from one another and apart from other films.[xviii]

Videotape[xix]

Since it was developed in the late 1930s, magnetic tape has served as a major means of recording, distributing, and preserving information. It is an easy to use and versatile media for the storage of video, audio, computer and other data.

Factors that contribute to and complicate the problem of magnetic tape preservation include improper storage and handling, which can affect the physical integrity of magnetic tapes and compromise the future

ability to retrieve content. Unlike earlier recording media such as paper and photographic materials, the information recorded on magnetic tape is not directly humanly readable and requires a machine to render it. The interface between the media and the machine must meet specific conditions in order for the machine interpretation to be accurate. The physical integrity of magnetic tape is critical to achieving a proper interface with the interpreting machinery.

Though no test has been proven to effectively define it, the shelf life of magnetic tape media is finite, and often shorter than expected. Therefore recorded tape documents must be copied to new media before decay precludes access. Repeated use of magnetic tape can cause wear or physical damage that shortens its effective life. Yet it is often impractical and prohibitively expensive to make preservation and access copies of each and every original item. This situation frequently results in unique records being subjected to excessive use and wear without any back-up or other form of protection against loss.

The ability to play back a tape in the future depends on the existence of functional playback equipment. As new recording technologies and tape formats emerge on the market and gain in popularity among consumers, equipment manufacturers discontinue the production and support of older, superseded equipment. Eventually, to find functioning equipment able to play superseded formats becomes a formidable task. Many archival repositories are becoming increasingly aware of the challenges of preserving magnetic media. Therefore, transferring movies to videotape should not be considered a preservation option; the original film is likely to last longer than the video tape copy. Have a video copy made as a use copy for researchers.

CD/DVD[xx]

CD is short for *compact disc*. DVD initially stood for *digital video disc*, then *digital versatile disc*, but today the term *DVD* is often used without referring to a specific set of words. Both CDs and DVDs are optical media that use laser light technology to write or read data.

The life expectancy (LE) of optical discs depends on many factors, some controllable by the user, others not.

Factors that affect disc life expectancy include the following:

- type
- manufacturing quality
- condition of the disc before recording
- quality of the disc recording
- handling and maintenance
- environmental conditions

Environmental factors can affect the rate of disc degradation. In each of the three basic disc types (ROM, R, and RW and RAM), environmental forces will degrade the data layer much faster than the polycarbonate substrate layer (the clear plastic that makes up most of the disc). Because degradation of the data layer will render the disc useless well before the polycarbonate begins to deteriorate, the relative degradation rate for the polycarbonate layer is not used for life expectancy considerations. Physical mishandling of the disc is usually the cause of polycarbonate layer damage. The polycarbonate may also flex or bend if stored for a long period of time in a non-vertical position.

What is the life expectancy of a disc? Life expectancy means the length of time for which the disc remains usable. But that implies some acceptable amount of degradation. How much and what type of degradation is acceptable? There is an error detection and correction capability built into the system which corrects a certain number of errors. One method for determining end of life for a disc is based on the number of errors on a disc before error correction occurs. The chance of disc failure increases with the number of errors, but it is impossible to define the number of errors in a disc that will absolutely cause a performance problem (minor or catastrophic) because it depends on the number of errors left, after error correction, and their distribution within the data. When the number of errors (before error correction)

on a disc increases to a certain level, the chance of disc failure, even if small, can be deemed unacceptable and thus signal the disc's end of life.

Manufacturers tend to use this premise to estimate media longevity. They test discs by using accelerated aging methodologies with controlled extreme temperature and humidity influences over a relatively short period of time. However, it is not always clear how a manufacturer interprets its measurements for determining a disc's end of life. Among the manufacturers that have done testing, there is consensus that, under recommended storage conditions, CD-R, DVD-R, and DVD+R discs should have a life expectancy of 100 to 200 years or more; CD-RW, DVD-RW, DVD+RW, and DVD-RAM discs should have a life expectancy of 25 years or more. Little information is available for CD-ROM and DVD-ROM discs (including audio and video), resulting in an increased level of uncertainty for their life expectancy. Expectations vary from 20 to 100 years for these discs.

An accelerated aging study at the National Institute of Standards and Technology (NIST) estimated the life expectancy of one type of DVD-R for authoring disc to be 30 years if stored at 77EF and 50% relative humidity. This testing for R discs is in the preliminary stages, and much more needs to be done.

CD-ROMs and DVD-ROMs are similar in that they are replicated discs—that is, the data are physically pressed into the disc when it is manufactured. ROMs are generally mass-produced and contain music, video, computer applications, or interactive games. ROM disc longevity is determined by the extent to which its aluminum layer is exposed to oxygen. Oxygen, including pollutants, can migrate through the polycarbonate layer or the hard lacquer layer (CD label side and edge), carried in by moisture. Oxygen or moisture can more easily penetrate through scratches, cracks, or delaminated areas in the label. Oxygen can also be trapped inside the disc during manufacturing, although manufacturing improvements have reduced the likelihood of this.

If left in a very humid environment, moisture and oxygen will eventually reach the aluminum, causing it to lose its reflectivity. The normally shiny aluminum, which resembles silver, becomes oxide-dull and much less reflective, like the color of a typical aluminum ladder. The combination of high humidity and increased temperatures will accelerate the oxidation rate.

The life expectancy of a ROM disc therefore depends on the environmental conditions to which it is exposed over time. Generally, it is best to keep ROM discs in a dry, cool environment. If the disc is removed from a humid, hot environment to an ideal condition before damage has been done, it will "dry out" and should be as playable as if it had been kept in ideal conditions all along. Other contaminates, however, such as inks, solvents, and pollutants, have the potential to irreversibly penetrate and to deform, discolor, or corrode the disc, causing permanent reading problems for the laser.

Most tests of optical disc life expectancy are performed with recordable discs (CD-R, DVD-R, DVD+R). These discs use gold, silver, or a silver alloy for the reflective layer instead of aluminum as in ROM discs. Gold will not corrode but is expensive. Silver is more reflective and cheaper than gold but is susceptible to corrosion if exposed to sulfur dioxide, an air pollutant that can penetrate the disc in the same way oxygen can—with moisture. Manufacturers use various silver alloys to help inhibit silver corrosion, and most R discs available today use a silver alloy reflective layer. The chance of silver corrosion from exposure to sulfur dioxide is less than the chance of aluminum oxidation caused by high humidity. Nonetheless, keeping the disc in a filtered "clean air" environment can minimize or eliminate its exposure to sulfur dioxide. With proper storage, these discs will outlast the technology.

R discs use a dye-based layer (organic dye) for recording data. These are "write-once" discs and cannot be erased by CD or DVD drives. The organic dye used in the data layer of R discs degrades naturally but slowly over time. High temperatures and humidity will accelerate the process. Prolonged exposure to UV light can degrade the dye properties and eventually make the data unreadable. Heat buildup within the disc, caused by sunlight or close proximity to heated light sources, will also accelerate dye degradation.

Manufacturers claim that CD-R and DVD-R discs have a shelf life of 5 to 10 years *before* recording, but no expiration dates are indicated on CD-R, DVD-R, or DVD+R packaging, nor are there published reports

of tests to verify these claims. Still, it would be prudent, in light of these claims, to purchase new discs as they are needed rather than to order large quantities and stockpile them for future use.

RW and RAM discs are generally not considered for long-term or archival use, and life expectancy tests are seldom done for this medium. Rewritable discs use a phase-changing metal alloy film for recording data and aluminum for the reflective layer. The alloy film is not as stable as the dye used in R discs because the material normally degrades at a faster rate; however, these discs should still be stable enough to outlast the current CD or DVD technology.

The phase-changing film is affected primarily by heat, but ultra-violet (UV) light may also be a factor in the aging process. The combination of high temperature and UV light may further accelerate the aging process. The combination of high temperatures and high relative humidity will also most likely accelerate the aging process, just as it does with the organic dye used in R discs. No lab test results are yet available on the effects of these environmental conditions on RW or RAM discs.

The data on the phase-changing metal alloy film layer can be erased and rewritten to a limited number of times (about 1,000 times for RW discs and about 100,000 times for RAM discs). This rewriting does, however, affect disc life expectancy; RW or RAM discs archived after the first recording should have a longer life expectancy than those that have undergone several erase-recording cycles. Given the normal degradation rate alone, the life expectancy for RW and RAM discs will be less than that of R discs. Add to that multiple rewrites, and the life expectancy can be even less. Just as the life expectancy of the disc varies with rewriting, so, too, does the security of the information itself. Information on RW and RAM discs is susceptible to loss or alteration as a result of the rewriting. Information on R discs is more secure precisely because it cannot be changed or rewritten.

CDs and DVDs can be reliable for many decades with proper handling. As with all other types of media, degradation is inevitable over time, but steps can be taken to help prevent it from occurring prematurely.

Optical discs will perform well within a wide range of temperature and relative humidity conditions. Discs kept in a cooler, less-humid environment and not subjected to extreme environmental changes should last longer.

If stored at a very low temperature relative to the user environment, the disc should be gradually acclimated to the environment in which it will be used to reduce stress and moisture condensation. A significant, abrupt temperature change will cause greater stress than a gradual change. Leaving the disc in its packaging will allow gradual acclimation to a changed environment. Discs used frequently should be stored at a temperature similar to that of the environment in which they are to be used. This minimizes stress from frequent temperature changes. Given the absence to date of relevant testing, the precise effects of storing CDs and DVDs in freezing temperatures are not yet known. Freezing and thawing may create harmful stresses in the disc because of differing expansion rates of the layers, but it is unclear how much this stress might affect the disc. There may even be a benefit to uninterrupted freezing of a disc for an extended period. Until testing is done to measure the effects of freeze-thaw cycles or long-term freezing, the benefits or harmful effects will remain uncertain.

Although the effect of light on ROM discs over time is not known, the effects of long-term exposure to light (e.g., UV, infrared, fluorescent) under ambient intensity, such as room lighting, are generally thought to be so minimal that light is not considered a factor in the lifetime of the ROM disc. Any effect of light on the disc would involve degradation of the polycarbonate substrate (plastic) and would become noticeable only after several decades of exposure to daily storage facility lighting or sunlight through windows. Degradation effects would likely be in the form of “clouding” or “coloring” of the polycarbonate. Light effects on ROM discs, therefore, are considered negligible.

Prolonged exposure to sunlight or other sources of UV light can significantly increase the degradation rate of the dye (recordable) layer in R discs. Deterioration of the dye makes it less transparent. As a result, some, or all, of the unmarked areas in the dye could be read as marks, depending on the severity of degradation. These areas will then result in errors when read by the laser. The most likely cause of

damage to R discs from direct sunlight is by heat buildup in the disc affecting the dye. Much of the ultra-violet range of sunlight can be filtered (or absorbed) by glass—e.g., the glass of a window. However, the lower light frequency (infrared) range will pass through a window and generate heat in the disc. A disc in a case, or one with a dark label, printing, or color that allows it to absorb more sunlight, also makes a disc more prone to heat buildup from direct sunlight exposure. The effects of heat buildup can be minimized if the disc is kept cool, such as in an air-conditioned room. Exposure to direct sunlight without protection (glass or plastic window) will cause the disc dye to degrade more rapidly. These observations on the effects of light are based on preliminary tests conducted at NIST.

Direct sunlight to R discs is harmful for two reasons: the sunlight's ultraviolet photons (the higher frequency of the sunlight spectrum) have enough energy to produce a photochemical reaction, altering the optical properties of the dye (recording layer) molecules; and the broad spectrum of unfiltered sunlight, infrared to ultraviolet (low frequency to high), can impart heat to the disc. The increased temperature generated by sunlight will accelerate the degradation or breakdown of the dye layer (recording layer) of the disc. The combination of high temperature and high relative humidity will further accelerate that degradation.

Light should have minimal, if any, effect on RW and RAM discs, for the phase-changing film used in such discs is not light sensitive. This film, however, is affected by heat; in fact, it is heat generated from the intense laser beam that writes data in the phase-changing film. Heat buildup in RW or RAM discs caused by direct sunlight will accelerate the degradation rate of the phase-changing film just as it does that of the dye in R discs. The phase-changing film in RW and RAM discs degrades naturally, and from heat buildup by direct sun-light, at a faster rate than the dye in R discs.

The polycarbonate substrate, or the plastic composition, that makes up most of the disc is a polymer material that is vulnerable to moisture. Any prolonged exposure to moisture resulting from a spill, humid air, or immersion allows water to become absorbed into the disc, where it may react with any of the layers. Returning the disc to a dry environment will allow the absorbed moisture or water to dissipate out of the disc over time; however, water or a water-based liquid may leave behind, within the disc, contaminants such as dyes or other dissolved minerals. If the disc has experienced no permanent damage from absorption of the liquid, it should play normally. In NIST tests, a CD totally submerged in clean water for 24 hours was found to be unreadable initially after removal and surface drying. It played normally, however, after 24 hours of drying out at approximately 70EF and 50% relative humidity (normal room conditions).

Contact of the disc with strong organic solvents must be avoided. Harsher solvents such as acetone or benzene will dissolve the polycarbonate and thereby damage the disc beyond repair. Limited contact (cleaning) with mild solvents such as isopropyl alcohol or methanol is permitted, as these solvents evaporate quickly and will not dissolve the polycarbonate. They may, however, dissolve or damage labels or optional coatings on the label side of the disc.

The effects on optical discs of magnetism, X-rays, microwaves, and radiation can be summarized as follows:

- Magnetism should have no affect on CDs or DVDs;
- X-ray exposure (e.g., from airport detectors) will not harm optical discs;
- Microwaves in a microwave oven will destroy a disc (it may also destroy your microwave oven because of the metal in the disc);
- Information on the effects of radiation is currently available from testing done in connection with the U.S. Postal Service's irradiation of mail to counter bioterrorism threats. CDs and DVDs have been tested at exposure levels of 60 to 300 kilograms of radiation. According to the results, disc data were unaffected by the radia-Light which should have minimal, if any, effect on RW and RAM discs, for the phase-changing film used in such discs is not light sensitive. This film, however, is affected by heat; in fact, it is heat generated from the intense laser beam that writes data in the phase-changing film. Heat buildup in RW or RAM discs caused by direct sunlight will accelerate the degradation rate of the phase-changing film just

as it does that of the dye in R discs. The phase-changing film in RW and RAM discs degrades naturally, and from heat buildup by direct sunlight, at a faster rate than the dye in R discs.

CD-R, CD-RW, DVD-R, DVD+R, DVD-RW. DVD+RW, and DVD-RAM discs can become unusable in a matter of days. If such a disc is left in an environment that allows direct sunlight and extreme heat buildup, the organic dye or phase-changing film that holds the data will degrade quickly, causing the disc to become unreadable. A disc is not protected from the effects of heat buildup if left in a case that is exposed to direct sunlight or other sources of heat. Extreme heat buildup can also cause warping of the disc.

Optical discs should be kept in individual storage containers until used and returned to those containers immediately thereafter. Typical storage containers, as listed below, isolate and help protect discs from airborne contaminants and other foreign material. They also help buffer rapid environmental changes that can cause stresses to the disc. Cases are designed to keep surfaces of the disc from contact with the inside of the case. Only one disc should be placed on the hub in the case. To remove the disc, one should press down on the hub tab while holding the outer edge of the disc with the fingers and then lift up. Bending the disc while lifting it off the hub tab should be avoided. For long-term disc storage, it may also be prudent to remove any paper from inside the case as the paper can attract moisture and produce higher moisture content in the case.

The Next Generation DVD

Toshiba Corp. is bringing out its next-generation DVD format which is expected to be used in players, recorders and other products that go on the market late in 2005. The Toshiba high-definition DVD format is competing against a rival technology called Blu-ray disc. Both formats promise increased storage capacity and movie resolution superior enough to get the most out of high-definition TV sets. Blu-ray can store more digital programming than HD DVD, but proponents of HD DVD say it will be cheaper for manufacturers because it is uses technology that more closely resembles that used in current DVDs.[xxi]

Blu-ray and HD-DVD are two competing high-capacity disc technologies backed by various consumer electronics and computer manufacturers (they are a computer storage media as well). Both formats use blue laser technology, which has a shorter wavelength than red, allowing it to read the smaller digital data "spots" packed a lot more densely onto a standard-size disc. HD-DVD is capable of holding 30GB or a full-length high-definition movie, plus extras, on a prerecorded double-layer disc (compare that to today's limit of 9GB for standard double-layer DVDs). Blu-ray will go up to 50GB at launch, and Sony is reportedly working on a quad-layer 100GB disc. Technologically, the biggest edge Blu-ray appears to have over HD-DVD is that it offers 30% more capacity and is designed for recording high-definition video. Rewritable BD-RW discs, with similar features to Panasonic's current DVD-RAM discs, can play back content while recording to the disc at the same time. HD-DVD simply can't boast the same storage capacity as Blu-ray. It's confusing, but it appears that the rewritable HD-DVD-RW will go up 32GB, while the recordable HD DVD-R discs will only be single layer (15GB).

One problem with Blu-ray is that the discs—initially, at least—will be more costly to produce than HD-DVD media. Until recently, the other problem was that unlike DVD-HD, the Blu-ray specifications did not include support for more advanced video compression codecs such as MPEG-4 AVC and Microsoft's VC-1, in addition to the MPEG-2 codec. But the Blu-ray group recently announced support for those codecs, so they're now on even ground on that front.

HD-DVDs carry the same basic structure as current DVDs, so converting existing DVD manufacturing lines into HD-DVD lines is supposedly simple and cost effective. Memory-Tech, a leading Japanese manufacturer of optical media, stated that producing HD-DVD discs would initially cost only 10% more than for existing DVDs and that it could quickly bring the cost down to match that of standard DVD.[xxii]

Preservation Photocopying[xxiii]

By using dedicated photocopying machines along with permanent and durable paper, preservation photocopying makes long-lasting replacement copies of deteriorating, damaged, or non-circulating documents and printed materials. The quality of a photocopy depends on the paper used, the machine making the copy, the expertise of the machine operator, the imaging materials adhering to the paper, the quality of the original image, and the completeness of the item.

Requirements for a Preservation Photocopy:

* Paper must adhere to standards for permanence and durability. Applicable standards are:
  ANSI Z39.48–Permanence of Paper for Printed Library Materials;
  ASTM D3290–Bond and Ledger Paper for Permanent Records;
  ASTM D3458–Copies from Office Copying Machines for Permanent Records.

  Paper color is generally white or off-white.

* Equipment must use a toner with carbon black pigment to produce permanent images.

* Copy machine must function at its optimum operating condition to meet the toner's need for heat/pressure setting of the image in the copying process. It may be necessary to have a specific machine dedicated only to preservation photocopying.

* Image adhesion to the paper must be tested. Do the tape pull test as described in National Archives and Records Administration Technical Information Paper No. 5. The test should be performed daily on copies from machines routinely used for preservation photocopying and may be performed by customers receiving copies produced by vendors.

* Passing the tape pull test means that copied text does not appear–even the outline of letters or symbols–in the adhesive of the required tape when it is slowly lifted off the image.

* Each preservation photocopy's image should replicate the original image and its placement in the original including registration of text on verso and recto sides of a page.

* Preservation photocopies must be inspected to verify page order, legibility, completeness, clarity, contrast, and accuracy. Quality of the replacement copy should be compared to the source materials.

* A preservation photocopy should have a statement identifying the work as a copy. Notice of copy should appear as a separate leaf in the copy. The copy identification statement should indicate that the paper complies with ANSI Z39.48 and may make reference to "poor quality original" to describe limits of photocopying.

* Copyright statements about the limited use of copied material may be added to the notice of copy if appropriate.

* Preservation replacement photocopies are to be properly housed and stored according to requirements for paper materials.

* Original material may be stored as "leaf masters," which may be retrieved for future duplication such as making an additional preservation photocopy or making use of other media conversion technology.

Preservation Photocopy as an Option for the Preservation of Books

Preservation Photocopying is a good option when it is the content of the book that you are interested in preserving and the paper of the text block is brittle. Preservation Photocopying can also be used to produce a surrogate copy if the original is sturdy enough to withstand the handling involved in photocopying. In order for a book to be reproduced in this manner it must fall outside the current copyright restrictions.

Preservation Photocopying is not an appropriate option for books with artifactual value. In most cases the original book is destroyed to produce the facsimile.

Note that photocopying onto alkaline paper is not the only requirement to produce a preservation photocopy. The equipment used must also meet U. S. government standards for image permanence in terms of the stability and strength of the ink bonding to the paper.

Digitization

Archivists do not consider digitization a preservation method per se. What digitization does preserve is information. It is also a good means of outreach and a good way to keep the original materials from being handled too much. The most common items being digitized today are photographic images in every format: prints, negatives, slides, transparencies, etc. There is an enormous amount of information on the Internet about digitization, far too much to try to summarize here. However, a good place to start learning about the world of digitization is the Digital Library Federation (DLF). The summary below is from the DLF site.[xxiv]

DLF Digital Preservation[xxv]

Building on the work of the Commission on Preservation and Access (CPA), the Council on Library and Information Resources (CLIR)[xxvi] and the DLF remain committed to maintaining long-term access to the digital intellectual and scholarly record. They have a particular interest in practical initiatives and in research into most poorly understood areas. This page links to CLIR, DLF, and CPA preservation initiatives, research reports, and related information resources.

The Global Digital Format Registry

Academic institutions are beginning to create digital institutional repositories into which the intellectual capital of a college or university can be preserved for reuse—gathering up not just the articles and books of the completed scholarly endeavor but also the data sets, presentations, and course-related materials that faculty generate. As this process moves forward, it becomes obvious that these institutions also need to save information about the many computer formats in which this mass of material expressed itself.

In fall 2002, a small group of Digital Library Federation (DLF) members—spearheaded by Harvard University and the Massachusetts Institute of Technology (MIT)—began the work of designing a central, shared registry of digital formats that all participating institutions may one day contribute to and use.

Libraries, which take naturally to such collaborative work, knew immediately that the need was limited neither to DLF members nor to U.S. institutions. DLF therefore reached out to others in the field. By the time the first face-to-face meeting was held in early 2003, the Format Registry Team had secured interest and representation from Bibliothéque nationale de France, Harvard University, the Joint Information Systems Committee of the Higher and Further Education Councils in the United Kingdom, JSTOR, the Library of Congress, MIT, the National Archives and Records Administration, the National Archives of Canada, the National Institute of Standards and Technology, New York University, the Online Computer Library Center, the University of Pennsylvania, Stanford University, the British Library, the California Digital Library, the Internet Architecture Board, the Internet Engineering Task Force, the Research Libraries Group, and the Public Records Office in the United Kingdom.

They have made remarkable progress toward the design of a global digital format registry. They have developed examples of how such a registry would be used to test the emerging design (i.e., “use cases”); decided what constitutes a “format” and what is merely a derivative form of a format; and articulated a series of services that can be built on top of an authoritative central registry. For example, the registry could be used to verify that what one takes into a repository is in fact the format that the human depositor says it is (better to know this at the point of ingest than to discover much later that a set of files described as Tag Image File Format images is actually something quite different). Or, the service could tell the user that the format that has just been loaded is unknown to it and therefore needs to be registered (an act that benefits all users of the service).

In August 2003, they presented their emerging design at the International Federation of Library Associations and Institutions conference in Berlin. Attendees strongly supported such a service and offered some valuable feedback on how it must work—and in how many places it must be housed—to be trusted and used on a global scale.

Much work remains to be done to build this service out, to establish a business model to sustain it, to develop a prototype and test it in the real world, and to create the mechanisms to populate and use it. Nonetheless, the work that has been done in the very lively planning stages suggests that we are well on our way to filling a critical gap in their international digital preservation architecture.

Currently, the University of Pennsylvania is developing a prototype registry service to test some design hypotheses for a format registry. Fred (Format Registry Demonstration) allows interested parties to contribute, view, and maintain format information. Fred is not itself intended to be the global format registry, but rather a testbed for ideas on how to design, build, and maintain such a registry. For more information see “Building a robust knowledge base for digital formats” (John Mark Ockerbloom, University of Pennsylvania) at http://www.diglib.org/forums/Spring2004/ockerbloom0404_files/frame.htm. And further information on the GDFR Initiative and its participants is available at http://hul.harvard.edu/gdfr/.

National Digital Information Infrastructure Preservation Program (NDIIPP)

In December 2000 the Library of Congress received an appropriation of up to $100,000,000 for the necessary salaries and expenses of the National Digital Information Infrastructure Preservation Program (NDIIPP). Of that money, $5,000,000 is to be made available immediately to the Library for the production of a program plan, an additional $20,000,000 upon Congressional approval of that plan, and the remaining $75,000,000 upon the Library's securing a minimum of $75,000,000 in match funding by March 2003. In June 2001, the Library of Congress contracted with the Council on Library and Information Resources (CLIR) for assistance in planning the NDIIPP. The DLF has played a part in CLIR's planning effort: framing and contributing to “stakeholders” meetings, commissioning a survey of national preservation initiatives underway outside the US, commenting on technical issues, and contributing to scenario planning activities. More information arising out of the NDIIPP will be available from the Library of Congress's web pages.

Preservation of Electronic Scholarly Journals

A practical initiative to identify and build consensus around appropriate archival practices and to facilitate the development of lasting digital archival repositories for electronic scholarly journals. The pages include a web site for a program funded by the Andrew W. Mellon Foundation to plan long-term archival solutions for electronic scholarly journals.

Research reports

Risk Management of Digital Information: A File Format Investigation (June 2000):[xxvii] This report by Gregory W. Lawrence, William R. Kehoe, Oya Y. Rieger, William H. Walters, and Anne R. Kenney is based on an investigation conducted by Cornell University Library to assess the risks to digital file formats during migration. The report includes a workbook that will help library staff identify potential risks associated with migrating digital information. Each section of the workbook opens with a brief issue

summary, followed by questions that will guide users in completing a risk assessment. The appendices also include two case studies for migration: one for image files and the other for numeric files.

Avoiding Technological Quicksand: Finding a Viable Technical Foundation for Digital Preservation (January 1999):[xxviii] A report by Jeff Rothenberg, computer scientist at the RAND Corporation, documenting and assessing existing models of digital archiving and developing his theories of software emulation.

Into the Future: On the Preservation of Knowledge on the Electronic Age:[xxix] Film (including accompanying discussion guide and a compendium of other resources) produced by CLIR to inform a variety of publics about issues of preservation in the electronic age, to articulate what might be at stake for our society, and to point to ways that individuals and groups can work together to find solutions to the challenges posed.

Preserving Digital Information, Report of the Task Force on Archiving of Digital Information (May 1996):[xxx] Report by Donald Waters and John Garrett recommending specific actions that the Commission on Preservation and Access and the Research Libraries Group, Inc., and other organizations could undertake to help develop reliable systems for preserving access to digital information. A considerable portion of the report explores the nature of "information objects in the digital landscape." The report proposes creation of a distributed structure for collecting digital information resources, protecting their integrity over the long term and retaining them for future use. It concludes that the significant challenges in preserving digital information are not so much organizational or technological as legal and economic.

The subject gateway to digital preservation resources can be found at Preserving Access to Digital Information (PADI).[xxxi]

About the DLF[xxxii]

The DLF operates through a professional director with a small staff and a Steering Committee on which each member institution is represented. Drawing on its members and others in the scholarly, library, and computing communities, the DLF brings together experts needed for each DLF initiative, and awards Distinguished Fellowships for special projects. The Council on Library and Information Resources houses the staff, provides administrative support, and collaborates on publications. Funding comes from members and grants.

DLF Services

To help member libraries (and allied institutions) advance this work, the DLF provides:

* leadership and support for new research, standards development, and project start-ups
* a twice-a-year forum for guiding the DLF, reporting developments, and sharing experiences of members in developing and managing electronic resources
* an e-mail listserv for exchanging information, announcing initiatives, identifying resources and stimulating discussion
* this Web site for providing public access to information about activities, resources, developments and the DLF itself
* two online databases providing access through this Web site to digital collections of material in the public domain, digital-library events, and digital-library documentation (policies, strategies, working papers, standards, and technical documentation).
* an annual, Web-based DLF Newsletter for reporting on the progress of initiatives and on members' digital-library services, collections, projects, and challenges
* DLF publications including printed publications, working papers, reports, forum proceedings and other digital library information resources
* brief printed publicity materials describing the DLF and its various initiatives and activities

DLF Initiatives

DLF initiatives change with needs; as some projects come to fruition or find new support, the DLF invests in others, staying flexible as a catalyst for experiment and change. For example, the DLF has promoted work on the following:

* Digital library structures, standards, preservation, and use
* Archives for electronic journals
* Online collections for use in teaching
* Internet services that expand access to resources of use to scholars
* Assessments of the future roles of libraries

DLF Partners

The British Library
California Digital Library
Carnegie Mellon University
Columbia University
Cornell University
Council on Libraries and Information Resources
Dartmouth College
Emory University
Harvard University
Indiana University
Johns Hopkins University
Library of Congress
National Archives & Records Administration
Massachusetts Institute of Technology
New York Public Library
New York University
North Carolina State University
Pennsylvania State University
Princeton University
Rice University
Stanford University
University of California, Berkeley
University of Chicago
University of Illinois at Urbana-Champaign
University of Michigan
University of Minnesota
University of Pennsylvania
University of Southern California
University of Tennessee
University of Texas at Austin
University of Virginia
University of Washington
Yale University

DLF Allies

Los Alamos National Laboratory Research Library
Online Computer Library Center
Research Libraries Group
Coalition for Networked Information
Joint Information Systems Committee

Preservation Supplies[xxxiii]

Supplies needed for preservation are listed below, along with brief descriptions of their use. Paperboard, polyester film, and similar supplies should be subjected to ongoing quality control review.

Archival Bond Paper: For use in preservation photocopying, as interleaving sheets, as well as for tabs or cross-reference forms that are placed within files of documents or bound volumes. Also to be used as pre-cut protective strips to be positioned as a support under stainless steel paper clips and rustproof staples.

Bone Folders: Smooth, thin tool made of bone with tapered or pointed ends, used to make *strong creases in file folders.*

Brushes, Dusting: Suitable for dusting the exteriors of bound volumes, as well as enclosures that have been stored in open containers. Such brushes also may be used to dust shelves and archives boxes, but dust cloths are more effective in trapping dust in such situations. Stiff bristled brushes should not be used to dust the surfaces of paper records or photographic materials since they may damage records, force the dirt into paper fibers, and/or abrade fragile surfaces. Dusting brushes must be washed on a regular basis.

Brushes, Photographic: Soft-bristled brushes designed for lightly dusting the surfaces of photographic prints and negatives before they are placed in storage enclosures. Brushes used for dusting photographs should be reserved solely for this purpose and not used on other archival materials. Photographic brushes also may be designated for use in lightly dusting the surface of archival paper records. Brushes that are used for paper records should not be used on photographs.

Brush Care: Only clean brushes should be used when dusting archival records, to avoid simply transferring dirt from one surface to another. Since brushes will become dirty quickly when used with dusty records, a supply of several clean brushes should be kept on hand so that a fresh one is available when needed. Brushes should be washed as often as necessary, either in plain water or with water and a mild soap. Brushes should be rinsed thoroughly (especially if soap is used) and hung to air dry. Brushes must be thoroughly dry before they are used on archival records.

Corrugated Folders (acid-free): For use in handling and transporting oversize archival records. Such folders are lightweight and also provide rigid support. They can be fabricated in sizes up to 4' x 8', using gummed linen tape to hinge the two pieces of corrugated board together.

Cotton Gloves, White: Recommended when working with dirty materials, and to protect hands from paper cuts. Gloves also should always be worn when handling and sleeving photographic materials to avoid transferring oils from the hands, which can permanently damage photographs. Gloves should be changed as soon as they become dirty to avoid transferring dirt to archival records.

Cotton Twill Tape, White (1/2", 3/4", 1"): To be used in tying bound volumes that are damaged or weak and to keep covers and spine pieces from being separated from text blocks. The width of twill tape selected should relate to the size of the volume being tied; 1" (or wider) tape should be used for large, heavy textbooks. Cotton tape should not be used to tie bundles of loose paper records or rolled documents, since it can easily break, tear, or damage edges of unsupported records. Colored cloth tape should not be used with archival records due to problems associated with unstable dyes.

Dust Cloths: For dusting archives boxes, the exteriors of bound volumes, and shelves. Dust cloths should not be used to wipe or dust the surfaces of loose paper records, photographic materials, or pages in bound volumes.

Dust Masks: Recommended when working with particularly dirty records, especially for people bothered by dust.

Ink: Ink that is not acidic, does not fade, and is not soluble in water should be used if the permanent marking of records is authorized. Pencils are recommended, however, for most archival applications, including writing notations on file folders and boxes.

Microspatula (stainless steel): Thin and flexible spatulas that can be used to remove staples and similar fasteners.

Paper Clips (stainless steel): To be used in conjunction with protective strips of archival bond paper, and then only when the documents are strong and flexible. Stainless steel paper clips should be used as the fastener of choice if records of high intrinsic value must be held together. Office or commercial quality paper clips readily rust and should not be used on archival records. Conversely, given the expense of stainless steel paper clips, they should only be used on archival records, not for office applications.

Polyester Sleeves: For enclosing and protecting fragile, brittle, and/or torn documents, as well as photographic prints and negatives that are filed among textual records. Sleeves with two adjacent sealed edges (L-sleeves) are recommended to maximize safe insertion and removal of fragile records.

Spacer Boards: To be used in partially filled archives boxes to keep records upright. Constructed of acid-free corrugated paperboard, the spacer boards are designed to fit standard letter and legal size archives boxes. There are score lines on each end of the board; folds should be made as necessary, depending on the size and contents of a box.

Staples (non-corrosive, rustproof): To be used when paper records are strong and flexible. Staples should not be used on brittle paper, and they are not recommended for use on archival records of high intrinsic value because of the punctures they make. A small strip of archival bond paper should be folded in half and placed over the top edges of the records to be attached before applying the staple. Office or commercial quality staples should not be used on archival records.

Storage Containers: Archival storage boxes, file folders, envelopes, boxes and enclosures that meet archival specifications are available in standard as well as specialized sizes and formats to meet the storage requirements of a wide variety of archival records.

Costs of Preservation Materials

In general, archival supplies will cost more than ordinary office supplies. The costs of materials will vary slightly with each vendor. Below are examples of the more commonly used supplies and a general estimate of costs compiled from checking several vendors:

Standard Document Cases are used for vertical storage of files. They come in several sizes: half, letter, legal, oversize, and extra large: prices can range from $4.95 for one for the half size to $5,150.00 for 1000 for the extra large size. Prices are dependent on size and the costs decrease per box the more boxes you buy.

Hollinger Boxes: Hollinger Board is a fully bleached fiberboard with a 225#/MSF basis weight and 275# Mullen Test; 60PT caliper, 8.5 pH, lignin & sulfur free, 3% calcium carbonate buffer, meets ANSI IT9.2 Standards. Hollinger Board is commonly used for storage boxes which are frequently handled. Hollinger boxes run an average of $1.00 to $2.00 more than other brands.

Document Case Inserts (these inserts can be placed in standard letter and legal size document cases to reduce the width to 1", 2", 3" or 4" to accommodate smaller files): prices can range from $2.95 for one to $960.00 for 1000 for letter size; and $2.95 for one to $1,010.00 for 1000 for legal size.

Manuscript Folders are available untabbed or with 1" W full-cut tab to make labeling easy. Use them in clamshell storage boxes, drop-front storage boxes and archival document cases. Interleave stored materials with acid-free paper for added protection. Choose from letter and legal sizes, tabbed and

untabbed. Specifications: Acid-free, Lignin-free, pH 8.0 - 9.0, 10-pt., Folder stock: Cream, 3% Calcium carbonate buffer: Price Per pkg-100 average $35.00.

File Folders: Letter Size, 11.75" x 9.625": prices can range from $0.95 for one to $1,700.00 for 10,000; Legal Size, 14.75" x 9.625": prices can range from $0.95 for one to $2,100.00 for 10,000.

Map Folders range in size from 11"x14.5" to 36"x48": prices can range from $1.95 for one to $470.00 for 1000 for the smallest size up to $5.95 for one to $8,325.00 for 2500 for the largest size (35"x48"). Prices are dependent on size and the costs decrease per folder the more folders you buy.

Video and Audio Cassette Boxes: audio cassette 18 pack can range from $3.95 for one to $2,400.00 for 1000; and video cassette boxes 10 pack from $5.95 for one to $3,400.00 for 1000.

Photo Sleeve (sleeve is open on ends, closes with fold lock flap on one long side for easy insertion and removal): 4" x 5": prices can range from $0.79 for one to $270.00 for 1,000; 5" x 7": prices can range from $0.89 for one to $340.00 for 1,000; 8" x 10": prices can range from $0.99 for one to $530.00 for 1,000.

Mylar (Sleeves, Multipurpose, 2mil Polyester, Sealed on 1 Side, 50 per Package, Melinex): 11W x 14"H averages $43.10; 5 or more $35.40 each; 8 1/2W x 11"H averages $35.95 each and 5 or more $33.30.

Hollinger Archival Bond Paper (Acid Free, 8.5 pH, 3% calcium carbonate buffer, lignin and sulphur free, 25% cotton, meets ANSI IT9.2 standards): 8.5" x 11" Letter Size - 500 sheets per ream: prices range from $14.64 for one ream to $239.00 for 20 reams; 8.5" x 14" Legal Size - 500 sheets per ream: $18.18 for one ream to $299.00 for 20 reams; 11" x 17" Bond Paper - 500 sheets per ream: $29.28 for one ream to $478.00 for 20 reams.

White Cotton Gloves: One Dozen Light Weight Cotton Gloves - Medium: $12.00, 2/$20.00; One Dozen Light Weight Cotton Gloves - Large: $12.00, 2/$20.00

Nylon Gloves: $5.95 for one to $180.00 for 50.

Polyvinyl Gloves (protect your hands from chemicals and your collections from fingerprint oils while providing a non-slip grip): surgical style, disposable: $15.90 for 50

Archival pens run an average $3-4 each.

Spatulas: Straight and Bent Ends, Stainless Steel, used for Book Repair. These flexible, functional tools are excellent for a variety of delicate repair and restoration tasks, including book repair, lifting labels, slitting paper and applying adhesives in small, hard-to-reach places. Each tool has one tapered end. The Double-headed Spatula has one rounded end averages $10.00 each and the Micro Spatula has one straight end averages $6.00 each.

Chapter Notes for "What Does Preservation Cost?"

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Endnotes:

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APPENDIX A

Glossary Of General Terms

ABRASION MARKS: Scratches on film caused by dirt, improper handling, grit, emulsion pile-ups, and certain types of film damage.

ACCESSION: 1. The act of transferring legal and physical control of records and papers to the archives or records center. 2. The materials which have been transferred to the archives.

ACCESSION RECORD: An administrative and descriptive document identifying the contents, provenance, and disposition of material brought into the archives.

ACCESS STORAGE: Storage conditions at or near room-ambient conditions that allow tape collections to be readily accessed for immediate playback.

ACETATE: Type of film base. May be di- or tri-acetate. Cellulose tri-acetate is more common for modern film. Acetate safety film was first produced in the 1920s in order to avoid the risk of flammability posed by nitrate-based films. A type of basefilm used for making audio tapes until the 1960s. Also called cellulose acetate; it is related in chemical composition to cellulose diacetate. See SAFETY FILM.

ACID: In chemistry, a substance capable of forming hydrogen ions when dissolved in water. Acids can weaken cellulose in paper, board, and cloth, leading to embrittlement. Acids may be introduced in the manufacture of library materials and may be left in intentionally (as in certain sizings) or incidentally. Acids may also be introduced by migration from other materials or from atmospheric pollution. See pH and ACID MIGRATION.

ACID FREE: In chemistry, materials that have a pH of 7.0 or higher. Sometimes used incorrectly as a synonym for alkaline or buffered. Such materials may be produced from virtually any cellulose fiber source (cotton and wood, among others), if measures are taken during manufacture to eliminate active acid from the pulp. However free of acid the paper or board may be immediately after manufacture, over time the presence of residual chlorine from bleaching, aluminum sulfate from sizing, or pollutants in the atmosphere may lead to the formation of acid unless the paper or board has been buffered with an alkaline substance.

ACIDIC: Containing acid. With regard to safety film, primarily refers to acetic acid, which is a result of acetate decomposition. Buildup of acetic acid causes VINEGAR SYNDROME.

ACID MIGRATION: The transfer of acid from an acidic material to a less acidic or pH neutral material. This may occur directly, when the two materials are in intimate contact. For instance, acid may migrate from boards, endpapers, and protective tissues, as well as the paper covers of books and pamphlets to the less acidic paper of the text.

ACQUISITION: The act of obtaining records for the archives, through donations, transfers, loans, or purchase.

ACRYLIC: A plastic noted for transparency, light weight, weather resistance, color fastness and rigidity. In addition to these qualities, acrylics are important in preservation because of their stability, or resistance to chemical change over time, a characteristic not common to all plastics. Acrylics are available in sheets, films, and resin adhesives. Some common trade names for the sheet form are: Perspex®, Lucite® and PlexiGlas®.

ADMINISTRATIVE VALUE: The usefulness of the records to the creating office for the conduct of its day-to-day business.

AES: Abbreviation for Audio Engineering Society.

ALKALINE: Alkaline substances have a pH over 7.0. They may be added to a material to neutralize acids or as an alkaline reserve or buffer for the purpose of counteracting acids that may form in the future. A buffer may be added during manufacture or during the process of deacidification. While a number of chemicals may be used as buffers, the most common are magnesium carbonate and calcium carbonate.

ALPHA CELLULOSE: A form of cellulose derived from cotton. The presence of alpha cellulose in paper or board is one indication of its stability or longevity. Non-cellulosic components of wood are believed to contribute to the degradation of paper and board.

AMATEUR: Non-professional. An amateur filmmaker is someone who does not make movies professionally, but makes movies as a hobby.

ANALOG RECORDING: A recording in which continuous magnetic signals are written to the tape, representing the voltage signals coming from the recording microphone or the video camera.

ANALOG-TO-DIGITAL: The process in which a continuous analog signal is quantized and converted to a series of binary integers. Sometimes called A-to-D.

ANSI: Abbreviation for American National Standards Institute.

APPRAISAL: 1. The act of determining the worth of records and papers to either the creator or the archives based on primary values, such as their administrative, legal, or financial usefulness, or secondary values, such as their historical, informational, evidential, and research values. 2. The monetary evaluation of historical materials.

ARCHIVAL STORAGE: Storage conditions specifically designed to extend or maximize the lifetime of stored media. Generally characterized by levels of temperature and relative humidity lower than those in access storage conditions and with minimal fluctuations. Access to archival storage by personnel is limited for security reasons.

ARCHITECTURAL RECORD: A plan, drawing, blueprint, or other graphic or visual document used in the design and construction of buildings, grounds, landscapes, or other manmade objects.

ARCHIVAL: In reference to storage supplies, refers to chemically inert materials. Archival materials will not chemically affect the item you are trying to preserve. More generally, describes the film stock and storage conditions which provide for long-term (at least one hundred years) storage of film.

ARCHIVAL PRINTING [copying film to film]: This can be done at a lab that has equipment that can handle shrunken, brittle, older film without destroying it.

ARCHIVAL VALUE: The permanent and continuing worth of records based on their administrative, legal, financial, or historical usefulness.

ARCHIVES: 1. The non-current records of an individual, organization or institution kept for their continuing value. 2. The agency or institution responsible for the care of archival materials. 3. The building or other repository housing archival records. Private papers are also referred to as manuscripts.

ARCHIVIST: The person responsible for caring for historical materials in the archives, including acquisition, appraisal, accessioning, arrangement, description, conservation, reference services, and public relations activities.

ARRANGEMENT: The act and result of physically organizing records in accordance with archival principles such as provenance and original order. The process includes sorting, packing in file folders and boxes, labeling, and shelving.

ARTIFACT: A physical object produced, shaped, or adapted by human workmanship.

ARTIFICIAL COLLECTION: A body of archival material deliberately brought together for some reason other than in the process of daily activities. Some collections are based on subject content, geographical information, or type of record.

AUTOCATALYTIC: This term relates to VINEGAR SYNDROME. An autocatalytic process is one which feeds upon itself. In the case of VS, the decaying acetate film creates ACETIC ACID, which in turn speeds up the process of decay.

BACKING: See BASEFILM. Also called base, basefilm, substrate.

BALANCE STRIPE: A magnetic stripe on the opposite edge of the film from the magnetic track. It is much thinner than the stripe that is used for the soundtrack. Although the purpose of the stripe is to keep the film level on the reel, some projectors also record on it.

BASE: The transparent, flexible support, commonly cellulose acetate, on which photographic emulsions are coated to make photographic film.

BASEFILM: Backing film layer that supports the magnetic layer in a magnetic tape. Polyester Terephthalate (PET) has been the most commonly used tape substrate for analog videotape. Polyethylene Napthalate (PEN) is commonly used for digital videotapes. Also called backing, base, substrate.

BINARY NUMBER: A number that can be represented using only two numeric symbols, 0 and 1. Binary numbers are used by computers because they can easily be represented and stored by hardware that utilizes switches, magnetic fields, or charge polarities that are normally in one of two states. The on/off, north/south, or positive/negative states can easily represent the 1s and 0s of a binary number, respectively.

BINDER: Polymers used to bind a film's emulsion to the base, or magnetic particles together and to the base of magnetic tapes. Generally, a polyester or polyether polyurethane based system. See POLYMER.

BIT: In digital terms, a single numeric character. Each bit of a binary number can either be 0 or 1. An e-bit number is composed of exactly n numeric characters. An e-bit binary number has a set number of distinct values; that number is derived by calculating 2 to the nth power. For example, an 8-bit binary number has 2 to the eighth power, or 256, distinct values, namely all the numbers between 00000000 (0 in decimal) and 11111111 (255 in decimal), inclusive. Eight-bit quantization would discretely sample a signal and assign each sampling a value from 0 to 255, permitting 256 possible values.

8 bits=1 byte
1,024 bytes=1 kilobyte (KB)
1,048,576 KBs=1 Megabyte (MB)
1,024 MBs=1 Gigabit (GB)
1,024 GBs=1 Terabyte (TB)

BLOCKING: The sticking together or adhesion of successive windings (layers) in a tape pack. Blocking can result from (1) deterioration of the binder, (2) storage of tape reels at high temperatures, and/or (3) excessive tape pack tension.

BLOW-UP: A picture element which is on a larger format gauge than the original. For instance, a super 8 film can be blown up to 35mm.

BUCKLE: Occurs when the perforated edges of film are shorter than the center (the film has become shrunken). It is caused by the loss of solvent or moisture from the edges of the film during long storage.

BUFFER: See ALKALINE.

BUFFERED PAPER: A paper that is pH neutral to begin with and then has a reserve of Alkaline to neutralize additional acids as they migrate to the paper.

BUFFERING: The addition of calcium carbonate, a colorless or white alkaline chemical, to paper and storage boxes to inhibit the formation and migration of acids.

BYTE: One byte is one computer "word" and is usually equal to 8 bits. See BIT.

CALCIUM CARBONATE: An alkaline chemical used as a buffer in papers and boards.

CALENDAR: A chronological listing of individual documents, identifying writer, recipient, date, place, and summary of content. Calendars are rarely produced and are not recommended archival practice.

CAMERA ORIGINAL: Film exposed in a camera (not at the lab).

CAMPHOR: A PLASTICIZER used in nitrate and di-acetate film to promote flexibility and decrease brittleness. Films treated with camphor have a distinctive "mothball smell."

CARRIER: The physical medium on which the video/data is recorded.

CARTOGRAPHIC RECORD: A graphic record depicting a linear surface. Two types of cartographic records discussed in this book are maps and plans.

CATALOGUE: 1. To organize information about records according to a specific classification system, such as subject, author, date, or place. 2. A group of cards, papers, or other media organized according to a specific classification system.

CAV: Constant Angular Velocity. The disc speed remains constant while the head-to-disc speed changes. Magnetic discs spin at a Constant Angular Velocity.

CELLULOSE: The chief constituent of the cell walls of all plants. Also, the chief constituent of many fibrous plant products, including paper and some cloth.

CHEMICAL STABILITY: Not easily decomposed or otherwise modified chemically. This is a desirable characteristic for materials used in preservation, since it suggests an ability to resist chemical degradation (such as the embrittlement of paper), over time and/or upon exposure to various conditions during used or storage. Other terms used loosely as synonyms: inert, stable, chemically inert.

CINCH MARKS: Short scratches on the surface of a motion picture film, running parallel to its length. These are caused by dust or other abrasive particles between film coils, or by improper winding of the roll, permitting one coil of film to slide against the other. See CINCHING.

CINCHING: The wrinkling, or folding over, of tape on itself in a loose tape pack. Normally occurs when a loose tape pack is stopped suddenly, causing outer tape layers to slip past inner layers, which in turn causes a buckling of tape in the region of slip. Results in large dropouts or high error rates. Practice of pulling the end of a roll to tighten it. Not recommended. Causes CINCH MARKS.

CLV: Constant Linear Velocity. The disc changes speed as the head moves from the inner track to the outer track. Compact discs (CDs) spin at a Constant Linear Velocity.

COERCIVITY: The level of demagnetizing force that would need to be applied to a tape or magnetic particle to reduce the remnant magnetization to zero. A demagnetizing field of a level in excess of the coercivity must be applied to a magnetic particle in order to coerce it to change the direction of its magnetization. Coercivity is the property of a tape that indicates its resistance to demagnetization and determines the maximum signal frequency that can be recorded by a tape. Hc is the common abbreviation for coercivity.

COHESIVE FORCE: The force that holds a material together.

COMPONENT: A Component TV system has multiple, separate signals and requires two or three cables.

COMPRESSION: The term used to describe the method of eliminating redundant information in each frame of digital video. Low-level compression of about 2:1 is usually considered "lossless." Over about 5:1, compression is "lossy."

COMPOSITE: Composite is the combination of sync, black/white video and color video signals and uses only one cable. Consumer TV and VCRs are examples of composite video.

CONSERVATION: The physical care and maintenance of archival materials, including cleaning, storage, and repair.

CONTAINER: The enclosure that contains a reel or cassette of tape.

CONSERVATION: The treatment of library or archive materials, works of art, or museum objects to stabilize them chemically or strengthen them physically, sustaining their survival as long as possible in their original form. The actions taken to ensure the continued physical survival of an artifact without further degradation, for example, storing

your film in archival cans and in cold vaults. See PRESERVATION. Insert this above with previous definition of conservation. Combine or list serially?

COPY: The process of copying the information on one tape to another tape of the same or different format. The term "refreshing" is commonly used by some archivists and librarians to refer to the process of copying information from one tape to a newer tape of the same format (e.g., VHS to VHS). When the information is copied to a different format (e.g., Betamax to VHS), the terms "reformatting" and "converting" have been used. Also called migrate, refresh, transfer.

CRAZING: Thin fracture lines in the emulsion of film, caused by the shrinkage of the acetate.

CUPPING: A type of film damage in which it is impossible for the film to lie flat, due to some part having shrunk more than another. BUCKLING describes film whose edges are shorter than the center. EDGEWAVE or FLUTING occurs when the edges are longer than the center.

CURVATURE ERROR: A change in straight-line track shape that results in a bowed or S-shaped video track. This becomes a problem if the playback head is not able to follow the track closely enough to capture all of the information on the recorded track.

DEACCESSION: To remove material permanently from the physical control and ownership of the archives.

DEACIDIFICATION: A common term for a chemical treatment that neutralizes acid in a material such as paper and deposits and adds an alkaline buffer to counteract future acid attack. Deacidification technically refers only to the neutralization of acids present at the time of treatment, not to the deposit of a buffer. For this reason, the term is being slowly replaced with the more accurate phrase “neutralization and alkalization”. While deacidification increases the chemical stability of paper, it does not restore strength or flexibility to brittle materials. See pH. The process of neutralizing acid in documents or other objects, raising their pH value to a minimum of 7.0 to help preserve them.

DESCRIPTION: The act of establishing intellectual control over records by identifying their contents, important subjects, and historical significance. Records are described in finding aids.

DIACETATE (or DI-ACETATE): The initial 16 mm films were made with Cellulose Diacetate, an early form of cellulose acetate base. It has the characteristic smell of camphor or mothballs. Was replaced by Cellulose Triacetate by 1951.

DISPLACEMENT: The number of frames separating the sound and picture as it runs through a projector.

8mm magnetic track = 56 frames
Super 8 magnetic track = 18 frames
Super 8 optical track = 22 frames
16mm magnetic track = 28 frames
16mm optical track = 26 frames

DIGITAL RECORDING: A recording in which binary numbers represent quantized versions of the voltage signals from the recording microphone or the video camera. On playback, the numbers are read and processed by a digital-to-analog converter to produce an analog output signal.

DIGITAL-TO-ANALOG: The process in which a series of discrete binary integers is converted to a continuous analog signal. Sometimes referred to as D-to-A.

DISC: Commonly the term used for optical media, such as Compact Discs, as well as analog sound recordings, such as LPs and transcription discs.

DISK: The term used for magnetic media in non-tape format, such as a computer hard disk or a floppy disk.

DONATION: A permanent gift to the archives from an individual or organization.

DROPOUT: A term used with analog videotape recorders. A brief signal loss caused by a tape head clog, defect in the tape, or debris that causes an increase in the head-to-tape spacing. A dropout can also be caused by missing magnetic material. A video dropout generally appears as a white spot or streak on the video monitor. Most tape recorders have a Dropout Compensation circuit which approximates the missing information and makes the dropout difficult to see. The frequent appearance of dropouts on playback is an indication that the tape or recorder is contaminated with debris and/or that the tape binder is deteriorating.

DTV: Digital TV refers to the high resolution standard adopted by several countries in 1998-1999. Uses a picture aspect ratio of 16:9 rather than the old standard aspect ratio of 4:3.

EDGE CODES [or DATE CODES] Symbols printed along the edge of film stocks indicating the year of manufacture.

EMULSION or EMULSION LAYER: 1. Broadly, any light-sensitive photographic material consisting of a gelatin layer containing silver halides together with the base and any other layers or ingredients that may be required to produce a film having desirable mechanical and photographic properties. 2. In discussions of the anatomy of a photographic film, the emulsion layer is any coating that contains light sensitive silver halides grains, as distinguished from the backing, base, substratum, or filter layers.

ENCAPSULATION: 1. A form of protective enclosure for papers and other flat objects; involves placing the item between two sheets of transparent polyester film that are subsequently sealed around all edges. The object is thus physically supported and protected from the atmosphere, although it may continue to deteriorate in the capsule. Because the object does not adhere to the polyester, it can be removed simply by cutting one or more edges of the polyester. 2. The act of enclosing a document in sheets of mylar plastic to protect it from damage and dirt. The document does not adhere to the plastic and can be removed at any time.

EPHEMERA: Miscellaneous printed and published materials, such as advertisements, posters, broadsides, cards, and brochures, created for short-term use but historically valuable as illustrations of past events or activities.

EVIDENTIAL VALUE: The worth of the records in providing adequate and authentic documentation of the organization and activities of an agency.

FIBER CONTENT: A statement of the types and percentages of fibers used in the manufacture of a paper, board, or cloth. Important because the quality of the fiber significantly affects both the durability and chemical stability of the material.

FIBERBOARD: Paperboard made of laminated sheets of heavily pressed fiber

FILE: 1. To place records in a predetermined location according to a specific classification scheme. 2. A group of records organized and kept in a predetermined physical order in a folder.

FILM (motion picture): A thin, flexible, transparent ribbon with perforations along one or both edges; it bears either a succession of images or a sensitive layer capable of producing photographic images. See RAW STOCK.

FILM ARCHIVE: An institution dedicated to collecting and preserving motion picture film (and sometimes also film-related equipment and ephemera).

FILM CEMENT: A special combination of solvents and solids used to make overlap splices on motion picture film by its solvent action and subsequent welding of the film at the junction.

FILM PRESERVATION: The entire process of extending the useful life of motion picture film, including storage, duplication, labeling and cataloging.

FILM-TO-FILM PRESERVATION: The process of making new film negatives and prints from existing films. This is currently the best way to ensure the longest possible survival of a film.

FINDING AID: Any descriptive item, created by the archives or the creating agency, which identifies the scope, contents, and significance of records. Basic finding aids include guides, inventories, card catalogues, indexes, and lists.

FISCAL VALUE: The usefulness of records for financial purposes, such as to confirm monies paid, taxes owing, monetary worth, or outstanding debts.

FLANGE PACK: A condition where the tape pack is wound up against one of the flanges of the tape reel.

FONDS: A French term for the records or papers of a particular individual, institution, or organization. Referred to in this manual as record groups and manuscript groups.

FORM: Any document created to obtain or organize information, containing spaces for inserting information, descriptions, or references.

FORMAT: The arrangement of information tracks on a tape as prescribed by a standard and the way the signal is processed. The two most common categories of recording formats are longitudinal and helical scan.

FUMIGATION: The process of exposing records to a gas or vapor which destroys insects, mould, mildew, fungus, or other harmful forms of life.

FULL-COAT MAG: Magnetic film used for soundtracks that is entirely covered on one side with the recording medium.

GATE: The aperture assembly at which the film is exposed in a camera, printer or projector.

GAUGE: Refers to the format/width (in millimeters) of the film stock, i.e., super 8, 16 mm, or 35mm.

35mm:	Primarily professional. Introduced 1895.
16mm:	Professional and amateur. Introduced by Kodak, 1923.
8mm:	Primarily amateur. Introduced by Kodak, 1932. Film stock is 16mm, then split into two 8mm strips following processing.
Super 8:	Amateur and professional. Introduced by Kodak, 1965.
Single 8:	Primarily amateur. Polyester-based super 8 cartridge introduced by Fuji, 1965.
9.5mm:	Primarily amateur. Introduced by Pathé, 1922.
28mm:	Primarily amateur. Introduced by Pathé, 1912.

GELATIN: Substance used to hold halide particles in suspension in the emulsion. Consists of protein derived from animal hooves, bone, and hides. This is the same kind of gelatin you find in gelatin desserts, marshmallows, and other edible items, but much purer.

GRANINESS: The sand-like or granular appearance of a negative, print, or slide. Graininess becomes more pronounced with faster film and the degree of enlargement.

GUIDE: A finding aid that describes the holdings of the repository and their relationship to each other. Guides may describe the entire holdings of the archives or focus on particular subjects, times, or places.

HARD DRIVE: HD. A magnetic disk drive used as the main memory of most personal computers.

HEAD: 1. Sometimes called tip (video only), play head, record head, read head, write head, magnetic head. The device that is like an extremely small horseshoe magnet with the north and south pole bent at 90 degree angles and almost touching. Wire is wrapped around each arm of the horseshoe and the recording signal is connected to these wires during the recording (write) process. This produces a magnetic field across the north-south pole gap. Tape passing next to this gap will be magnetized according to the magnitude of the signal. During playback (read), the process is approximately reversed. Some consumer machines combine record and play in the same head but this is very crude and inefficient. "Record" and "play" are terms commonly used in the audio and video field, while "write" and "read" are terms commonly used in the context of digital data. 2. The beginning of the (exposed) film. This is the

end that goes through the projector first. If there is a person standing in the frame, tha person's head points up toward the head of the film. See TAIL.

HEAD CLOG: Debris trapped on the playback head of a video recorder. Clogging of the playback head causes dropouts on analog tape machines and errors on digital tape machines.

HELICAL SCAN RECORDING: The recording format in which a slow moving tape is helically wrapped around a rapidly rotating drum with small embedded record and play heads. The tape is positioned at a slight angle to the equatorial plane of the drum. This results in a recording format in which recorded tracks run diagonally across the tape from one edge to the other. Recorded tracks are parallel to each other but are at an angle to the edge of the tape.

HUB: The center of a film reel.

HYDROLYSIS: The chemical process in which scission of a chemical bond occurs via reaction with water. The polyester chemical bonds in tape binder polymers are subject to hydrolysis, producing alcohol and acid end groups. Hydrolysis is a somewhat reversible reaction, meaning that the alcohol and acid groups can react with each other to produce a polyester bond and water as a by-product. In practice, however, a severely degraded tape binder layer will never fully reconstruct back to its original integrity, even when placed in a very low-humidity environment.

HYGROMETER: An instrument which measures relative humidity

HYGROSCOPIC: Said of a material which has a tendency to absorb water. An effect related to changes in moisture content or relative humidity. The hygroscopic expansion coefficient of a tape refers to its change in length as it takes on moisture from the ambient environmental conditions.

INDEX: 1. To list names, subjects, or other information alphabetically. 2. A finding aid in paper, card, or other form which contains alphabetically organized information about holdings in the archives, based on subject, author, chronological, or geographical categories.

INERT: Does not react chemically See CHEMICAL STABILITY.

INFORMATIONAL VALUE: The usefulness of records based on the information they contain about the creating agency or other people, subject, places, times, or events and activities.

INTERCHANGE: The ability to exchange recordings made on machines made by one manufacturer with those recorded on machines made by another manufacturer without affecting the playback of video.

INVENTORY: A finding aid that describes the organization and activities of the agency that created the records and the physical extent, chronological scope, and subject content of the records. in addition to this information, an inventory may include lists of box or file titles or other descriptive information.

ISO: International Standards Organization is the central world organization which adopts standards submitted by recognized standards groups like SMPTE, AES, and ANSI.

ITEM: The smallest unit of archival material, such as the individual letter, report, photograph, or reel of film

KODACHROME: One of the earliest of the integral tri-pack (three-layer) color reversal processes. It was created by Kodak for 16mm amateur stock in 1935. It is color reversal and very stable. Available in motion picture film (8, super 8 or 16mm) and slide film.

KODACOLOR: Kodacolor was a lenticular color system introduced in the 1920s which required the use of special lenses during projection. Unprojected, Kodacolor film appears black and white with grooved lines on the film's surface.

LAMINATION: A process of reinforcing fragile paper, usually with thin, translucent or transparent sheets. Some forms of lamination are considered unacceptable as conservation methods because of potential damage from high heat and pressure during application, instability of the lamination material, or difficulty in removing the laminated item, especially long after the treatment was performed.

LEADER: The first part of a magnetic tape before the start of the recording. For a VHS tape, this is a clear, non-magnetic material used to determine where to stop the tape during rewind. For other tapes, the leader may be a non-magnetic material spliced on the beginning of the tape (like VHS) or it may be the beginning section of the tape before the program material. This section may be unrecorded, it may contain metadata, or it may have color bars and/or audio tones. Any film or strip of perforated plastic or vinyl used for threading a motion picture machine. Leader protects the print from damage during the threading of a projector.

LEGAL VALUE: The worth of records for legal purposes, such as to prove ownership, custody, or legal rights and responsibilities.

LIGNIN: A component of the cell walls of plants that occurs naturally, along with cellulose. Lignin is largely responsible for the strength and rigidity of plants, but its presence in paper and board is believed to contribute to chemical degradation. It can be, to a large extent, removed during manufacture. No standards exist for the term “lignin-free” and additional research is needed to determine the precise role of lignin in the durability and performance of paper.

LIQUID GATE: A printing system in which the original film is immersed in a liquid that refracts light at the moment of exposure in order to reduce the appearance of surface scratches and abrasions on the original during the copying process.

LIST: A finding aid containing information such as file or box titles, names, places, or subject information in alphabetical, chronological or other order and including the physical location of the records enumerated.

LOCATION FILE: A finding aid which identifies the physical location of records in the archives.

LONGITUDINAL RECORDING: A recording format in which a slow or fast moving tape is passed by a stationary magnetic record or play (write or read) head. The recorded tracks are parallel to the edge of the tape and run the full length of the tape.

LUBRICANT: A component added to the magnetic layer of a tape to decrease the friction which occurs between the head and the tape during playback.

MACHINE-READABLE RECORD: Records created or stored on media such as magnetic diskettes, tapes, or cards and retrievable by machines such as computers or word processors.

MAGNETIC PARTICLES: The materials incorporated in the binder to form the magnetic layer on a magnetic tape. Iron oxide, chromium dioxide, barium ferrite, and metal particulate are various examples of magnetic pigment used in commercial tapes. The term "pigment" is a carry-over of terminology from paint and coating technology--the magnetic coating on a tape is analogous to a coat of paint in which the magnetic particle is the paint pigment.

MAGNETIC REMANENCE: The strength of the magnetic field that remains in a tape or magnetic particle after it is exposed to a strong, external magnetic field and the external field is removed. The property of a tape that determines its ability to record and store a magnetic signal. Mr is the common abbreviation for magnetic remanence. Magnetic remanence, Mr, and magnetic retentivity, Br, both refer to the ability of the tape to retain a magnetic field; however, the latter is expressed in units of magnetic flux density.

MAGNETIC SOUND: Soundtrack derived from an electronic audio signal recorded on a magnetic oxide stripe or on full-coated magnetic tape. It resembles audiocassette tape.

MAGNETIC SOUND HEAD: The magnetic sound reader installed above the projector head but below the supply reel support arm or magazine.
MAGNETIC STRIPING: The application of magnetic material on motion picture film intended for the recording of sound.

MAIN ENTRY: A library term referring to the complete catalogue record of an item, presented in the form by which the item is to be identified in any other references. It is the main or central identification.

MANUSCRIPTS: Unpublished handwritten or typed documents. in archives, manuscripts are usually defined as the personal papers of individuals or private groups as opposed to the records of a business, government, or other institution.

MAP: A representation of all or part of the surface of the earth (or other planet or body) identifying its geographical, political, or physical features.

METADATA: The information used to describe, identify and classify recorded information, such as audio and video content.

MICRON: A unit of measure for the thickness of magnetic tape. Symbol is □m.

MIGRATE: To copy recorded information to a newer format and/or media. Migration is a key strategy used in the preservation of digital information. See COPY.

MISTRACKING: The phenomenon that occurs when the path followed by the play (read) head of the tape recorder does not correspond to the location of the recorded track on the magnetic tape. Mistracking can occur in both longitudinal and helical scan recording systems. The head must capture a given percentage of the track in order to produce a playback signal. If the head is too far off the track, recorded information will not be played back at a level adequate for proper reproduction.

MOVIES: Common term used to describe 35mm and 70mm productions primarily made for showing in a movie theater. Most movies are eventually copied to VHS and distributed for home rental market. The international standard film rate is 24 frames per second (fps). The U.S. television standard is 30 fps. Conversion from film to TV or TV to film requires dropping or adding frames. See TV and VIDEO.

MIL: Unit of thickness equaling one thousandth of an inch (.001).

MYLAR: See POLYESTER.

NEGATIVE: Generally not intended for projection, the negative contains the reverse picture information. Used in the printing process to create positive copies. Negative motion picture film is basically the same as negative still film.

NEUTRAL: Having a pH of 7; neither acid nor alkaline.

NITRATE: Nitro-cellulose base film, used almost exclusively for 35mm film made before 1952. Nitrate has not been produced since 1952 (produced until the 1970s in the USSR) due to problems with the film catching fire. Once nitrate film is on fire, it cannot be put out. Nitrate film stock is identified by the word

NITRATE written along the edge of the film, outside the perforations. Still
photographic negatives were also made of nitrate base film.

NTSC: The 525 line/60 Hz television system used in the U.S., Canada, Japan and several other countries. Stands for National Television Standards Committee. European countries use either PAL or SECAM standards and are 625 line/50 Hz. See SDTV, HDTV, TELEVISION, SCANNING.

OERSTED: The unit of magnetic field strength. Abbreviated as Oe.

OPTICAL SOUND: An optical soundtrack is photographically represented along the side of the film as a wavy stripe of clear (variable area) or as gray gradations (variable density). It corresponds to the modulations of the sound. The soundtrack is read by means of an exciter lamp on the projector, which transforms the light back into sound.

ORAL HISTORY: The aural record or written transcript of a planned and recorded oral interview.

ORGANIC: Carbon-based. Non-synthetic.

ORIGINAL: The earliest generation in the archive. The source recording or final edited master.

ORIGINAL ORDER: The order and organization in which records were created and/or stored by the creator or office of origin.

OUT-TAKE: A filmed scene that is not used for printing or final assembly in editing.

PACK SLIP: A lateral slip of selected tape windings causing high or low spots (when viewed with tape reel lying flat on one side) in an otherwise smooth tape pack. Pack slip can cause subsequent edge damage when the tape is played, as it will unwind unevenly and may make contact with the tape reel flange.

PAPERS: Personal or private materials, as distinct from records. Also called manuscripts.

PARTICLE TRANSFER ROLLERS (PTRs): These sticky rubber rollers are used in cleaning machines or on projectors (usually 35mm platter projectors) to clean any dust and dirt off the film.

PASSIVATE: A chemical process which forms a protective coating on a metal. Used to coat and protect each particle in a Metal Particle (MP) tape.

PEN: Abbreviation for polyethylene napthalate. The base used for thin digital videotapes.

PERFORATION DAMAGE: Any breaks, tears, cracks, etc., that causes the perforations to be misshapen or missing.

PERFORATIONS: Regularly spaced and accurately shaped holes which are punched throughout the length of motion picture film. Pins, pegs, and sprockets engage these holes as the film is transported through the camera, projector, or other equipment.

PERMANENCE: Ability of a material to resist chemical deterioration, but not a quantifiable term. Permanent paper usually refers to a durable alkaline paper that is manufactured according to ANSI Standard X39.48-1984 Permanence of Paper for Printed Library Materials. Even so called permanent materials depend for their longevity upon proper storage conditions. See CHEMICAL STABILITY.

PET: Abbreviation for polyethylene terephthalate. The polymeric substrate material used for most magnetic tapes.

pH: In chemistry, pH is a measure of the concentration of hydrogen ions in a solution, which is a measure of acidity or alkalinity. The pH scale runs from 0 to 14, and each number indicates a tenfold increase. Seven is pH neutral; numbers below 7 indicate increasing acidity, with 1 being most acid. Numbers above 7 indicate increasing alkalinity, with 14 being most alkaline. Paper with a pH below 5 is considered highly acidic. Buffered storage materials typically have a pH between 7 and 9. See ACID, ALKALINE.

pH value: A measure of the level of acid in paper or other materials. The value is measured on a scale from 0 to 14: 7.0 is the neutral point, values above 7.0 are alkaline, and values below 7.0 are acidic.

PIXEL: The smallest unit of a digital picture/video. Derived from "Picture Element".

PLAN: A drawing or sketch of any surface showing the relative positions of various objects, parts of a building, landscape, or other physical features.

PLASTICIZER: Chemicals (such as CAMPHOR) added to the film base to ensure flexibility, and avoid brittleness and cracking.

PlexiGlas®: Trade name for acrylic sheet material made by Rohm and Haas. See ACRYLIC for other trade names

POINT: A unit of thickness of paper or board; one thousandth of an inch. For example, .060” equals sixty points. See MIL.

POLYESTER: A common name for the plastic polyethylene terephthalate. Its characteristics include transparency, colorlessness, and high tensile strength. In addition, it is useful in preservation because it is very chemically stable. Commonly used in sheet or film form to make folders, encapsulations and book jackets. Its thickness is often measured in mils. Common trade names are Mylar® by DuPont and Melinex® by ICI.

POLYETHYLENE: A chemically stable, highly flexible, transparent or translucent plastic. Used in preservation to make sleeves for photographic materials, among other uses.

POLYMER: A long, organic molecule made up of many small, repeating units. Analogous to a freight train, where each individual unit is represented by a freight car. At very high magnification, a chunk of polymer would resemble a bowl of cooked spaghetti. Plastic materials are polymers. The strength and toughness of plastics is due, in part, to the length of its polymer molecules. If the chains (couplings in the freight train) are broken by hydrolysis, the shorter chains will impart less strength to the plastic. If enough polymer chains are broken, the plastic will become weak, powdery, or gooey. See BINDER.

POLYVINYL ACETATE (PVA): A plastic usually abbreviated as PVA. A colorless transparent solid, it is usually used in adhesives, which are themselves also referred to as PVA or PVA adhesive. There are dozens of PVA adhesives, some are “internally plasticized” and are suitable for use in conservation, due to greater chemical stability among other qualities.

POLYVINYL CHLORIDE (PVC): A plastic, often abbreviated as PVC. It is not as chemically stable as some other plastics, since it can emit hydrochloric acid (which in turn can damage library materials) as it deteriorates, and therefore has limited application in the preservation of books and paper. Some plastics called vinyl may be polyvinyl chloride.

POLYESTER: A name for polyethylene terephthalate. This is a non-organic base for film. It is used nearly exclusively now for 35mm theatrical prints. Also known as Mylar; Cronar is the trade name for Dupont motion picture products; ESTAR Base is the trade name for Kodak products.

POPPED STRAND: A strand of tape protruding from the edge of a wound tape pack.

PRESERVATION: Activities associated with maintaining library, archival, or museum materials for use, either in their original physical form or in some other format. Preservation is considered a broader term than Conservation. See CONSERVATION.

PRESSBOARD: A tough, dense, highly glazed paperboard, used where strength and stiffness are required of a relatively thin (e.g. .030”) board. It is almost as hard as a sheet of fiberboard, and is commonly used for the covers of notebooks. See SOLID BOARD, FIBERBOARD.

PRINT-THROUGH: The condition where low frequency signals on one tape layer imprint themselves on the immediately adjacent tape layers. It is most noticeable on audio tapes where a ghost of the recording can be heard slightly before the playback of the actual recording.

PROCESSING: 1. The work involved in arranging records to make them available for use, including sorting, packing, labeling, and shelving. 2. Developing, fixing, and washing exposed photographic film or paper to produce either a negative image or a positive image.

PROVENANCE: The office of origin, or person or agency that created or collected records in the course of their activities. This definition differs from the museum definition of provenance, which refers to the successive ownership or possession of an item, not its creation.

QUANTIZATION: A process in which a continuous signal (analog) is converted to a series of points at discrete levels (digital). The quantized version of a ramp, a continuum of levels, would be a staircase, where only certain distinct levels are allowed.

RECORD GROUP: A body of organizationally related records created or collected by the same individual or agency as part of its functions and activities.

RECORDS: 1. Recorded information, regardless of physical format or characteristics. 2. Documents or other material created by business or government agencies in the course of their daily activities.

RECORDS CENTER: A facility separated either physically or administratively from the archives, used to store and provide reference service for semi-active and inactive records of the creating agency pending the ultimate disposition of the material.

RECORDS MANAGEMENT: The act of controlling the creation, use, and disposition of records created by an office or agency. Records management helps to improve economy and efficiency in the office, ensure the regular transfer of valuable records to a records centre, and control the regular disposal of records no longer worth keeping.

RECORD SCHEDULE: A document identifying the types of records created by an office or agency and governing their retention and disposition.

REDUCTION PRINT: A print made from a larger-gauge film, i.e. a 16mm film made from a 35mm original.

REFRESHING: This term can refer to periodic retensioning of tape, or the rerecording of recorded information onto the same tape (or different tape) to refresh the magnetic signal. In the audio/video tape community, refreshing generally refers to retensioning of the tape, but it can also refer to the copying of one tape to another. See COPY. Also called transfer, migrate.

RELATIVE HUMIDITY (RH): The amount of water in the air relative to the maximum amount of water that the air can hold at a given temperature.

REPOSITORY: A place where archival materials are housed.

RESPECT DES FONDS: Respect for the creator or office of origin. Referred to in this manual as provenance.

RESTORATION: The process where a tape degraded by age and wear is temporarily or permanently restored to a playable condition. Tape cleaning or baking are examples of tape restoration procedures.

RETENSIONING: The process where a tape is unspooled onto a take-up reel and then rewound at a controlled tension and speed. In performing this procedure, tape pack stresses are redistributed and, thus, the tape is retensioned. This has sometimes been referred to as exercising the tape.

REVERSAL FILM: Film that processes to a positive image after exposure in a camera, or in a printer to produce another positive film.

REVERSAL INTERMEDIATE: First-generation duplicate film element that is reversed to produce the same kind of image (negative or positive) as the original; used for printing.

REVERSAL PROCESS: Any photographic process in which an image is produced by secondary development of the silver halides grains remaining after the latent image has been changed to silver by primary development and destroyed by a chemical bleach. In the case of film exposed in a camera, the first developer changes the latent image to a negative silver image. This is destroyed by a bleach and the remaining silver halides are converted to a positive image by a second developer. The bleached silver and any traces of halides may now be removed with hypo.

REVERSIBILITY: Ability to undo a process or treatment with no change to the object. Reversibility is an important goal of conservation treatment, but it must be balanced with other treatment goals and options.

RF: Radio Frequency. The term used for the signal of the video play head during playback. RF is not used to describe an audio head playback signal.

RH: Abbreviation for Relative Humidity.

ROOM AMBIENT CONDITIONS: The temperature, relative humidity, and quality of the air in the room. Those conditions generally found in a library, studio, or office facility with a controlled environment (heating and air conditioning).

SAFETY FILM: Non-nitrate-based film. Generally, Cellulose Acetate film is called Safety film, but it can be used to describe polyester film as well.

SCANNING LINE RATE: The U.S. TV NTSC Standard since the 1940s uses a scanning rate of 525 lines per frame. Each frame (picture) is scanned twice at 262.5 lines per scan. The second scan is in between, or interlaced, the lines of the first scan. This complex system saves valuable frequency bandwidth. Computers do not have the problem faced by limited airwave bandwidth so conventional computer monitors use progressive scanning at 30 or 60 fps with no interlace.

SCISSION: The process in which a chemical bond in a molecule is broken either by reaction with another molecule, such as water, or by the absorption of a high energy photon.

SEPARATION SHEET: A form identifying archival material that has been removed from a larger body of records for various reasons, including storage, conservation, or disposition.

SERIES: Records or groups of records arranged in accordance with a particular filing system or maintained as a unit because of their relationship to one another. Series may be organized by original order, subject, function, or type of material.

SERPENTINE RECORDING: A form of longitudinal recording where track one is written near one edge of the tape, and when the end of tape is reached, the head moves (or another head is used) and the recording proceeds in the opposite direction. When the tape returns to the starting point, the head moves inward one track (or another head is switched on) and the recording continues. This process is repeated until the last track (near the other edge) is reached.

SDTV: Standard Definition TV refers to the TV systems commonly used around the world since the 1940s. See NTSC, HDTV, TELEVISION, SCANNING LINE RATE.

SHRINKAGE: Reduction in the dimensions of motion-picture film caused by loss of moisture, support plasticizers, and solvents, as well as heat, use, and age. The film actually shrinks, although often not uniformly.

SILVER HALIDES: Light-sensitive compound used in film emulsions.

SINGLE 8: see GAUGE

SINGLE-PERFORATION FILM: Film with perforations along one edge only. Often the soundtrack resides in the non-perforated side. Signal-to-noise ratio: The ratio of the recorded signal level to the tape noise level normally expressed in decibels. Commonly abbreviated as S/N. See TAPE NOISE.

SIZINGS: Chemicals added to paper that make it less absorbent, so that inks applied will not bleed. Acidic sizings can be harmful and can cause paper to deteriorate, but some are not acidic and are expected to be more chemically stable.

SMPTE: Abbreviation for the Society of Motion Picture and Television Engineers.

SOLID BOARD: A paperboard made of the same material throughout. Distinct from a combination board where two or more types of fiber stock are used, in layers. See FIBERBOARD, PRESSBOARD.

SOUND RECORDING: Aural information stored on discs, magnetic tape, cylinders, or other media.

SOUNDTRACK: OPTICAL or MAGNETIC track running lengthwise on film adjacent to the edges of the image frames and inside the perforations.

SPLICE: A method of joining two pieces of film so they may be projected as one continuous piece. There are three types of splices: TAPE SPLICE (can be used with all film bases), the CEMENT SPLICE (used for non-polyester material), and the far less common ULTRA-SONIC SPLICE (used for polyester-based film only).

SPLIT REEL. A reel used for holding film on cores. The two halves of which may be unscrewed and a core or film on a core placed in the middle.

SPROCKET: A toothed wheel used to transport perforated motion picture film in a projector, camera, or printer.
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STABILITY: See CHEMICAL STABILITY.

STAGING AREA: An area for storing film after it is removed from cold storage, allowing it to reach room temperature without attracting condensation.

STICK SLIP: The process in which (1) the tape sticks to the recording head because of high friction; (2) the tape tension builds because the tape is not moving at the head; (3) the tape tension reaches a critical level, causing the tape to release from, and briefly slip past, the read head at high speed; (4) the tape slows to normal speed and once again sticks to the recording head; (5) this process is repeated indefinitely. Characterized by jittery movement of the tape in the transport and/or audible squealing of the tape.

STICKY SHED SYNDROME: The phenomenon whereby a tape binder has deteriorated to such a degree that it lacks sufficient cohesive strength to prevent the magnetic coating from shedding during playback. Causes dropouts on videotapes and will clog video and/or audio heads.

STICKY TAPE: Tape characterized by a soft, gummy, or tacky tape surface. Tape that has experienced a significant level of hydrolysis so that the magnetic coating is softer than normal. Tape characterized by resinous or oily deposits on the surface of the tape.

STRESS: Force per unit area, such as pounds per square inch (psi). A tape wound on a reel with high tension results in a tape pack with a high interwinding stress. See TENSION.

SUBGROUP: A body of related material within a record group, usually composed of the records of a subordinate administrative unit.

SUBSERIES: A group of related material within a series, usually identified by subject, type of material, function, or filing arrangement.

SUBSTRATE: See BASEFILM. Also called film, backing, carrier.

SUPER 8: see GAUGE

SUPPLY REEL: The reel holding the film before it is projected in a projector.

TAIL: The end of a film. See HEAD.

TAKE-UP REEL: The reel onto which the film is taken up after it passes through the gate of the projector.

TAPE BAKING: A process in which a magnetic tape is placed at an elevated temperature for a brief time in order to firm up the tape binder. This procedure can be carried out as a temporary cure for sticky shed or sticky tape syndrome.

TAPE NOISE: A magnetic signal on the tape resulting from the finite size and non-uniform distribution of magnetic particles in the magnetic layer of the tape. Tape noise is inherent in any magnetic tape but can be reduced by using smaller pigment sizes in tape formulations. The iron oxide pigments found in less expensive tapes have the largest tape noise level. For analog, the noise increases each time the tape is copied (each generation). See SIGNAL-TO-NOISE RATIO.

TAPE PACK: The structure formed by and comprised solely of tape wound on a hub or spindle; a tape reel consists of a tape pack, the metal, plastic, or glass hub, and flanges.

TAPE TRANSPORT: The mechanics used to guide and move the tape through the recording system and past the magnetic heads of the recorder. The tape transport consists of the tape guides, capstan, rollers, tension controllers, etc.

TBC: Time-Base-Corrector. An electronic component, used with analog playback machines, which reduces the video errors created by changes in the head-to-tape speed.

TELECINE: An electro-mechanical machine used for transferring motion picture film to videotape.

TELEVISION: Refers to video/audio material transmitted via airwaves or via cable. Also called TV. Sometimes referred to as "video" but video has a special meaning. Television material is sometimes live (as with most newscasts) or from a videotape or a disc or from a feed from the network. The TV signal is connected to the antenna terminals on the rear of the TV set and a channel selector is used to select the desired TV program. The U.S. Television standard is 30 frames per second (fps). Conversion from film to TV or TV to film requires dropping or adding frames. See MOVIE, VIDEO.

TENSION: Force, or force per tape width. The force on a tape as it is transported through a recorder. A tape wound on a reel with high tension results in a tape pack with a high interwinding stress. See STRESS.

TEXTUAL RECORD: Written documents, either handwritten or typed, on a paper base.

THERMAL: An effect related to changes in temperature. The thermal expansion coefficient of a tape refers to its change in length upon a change in the ambient temperature.

TIMING SHEETS/STRIPS: Paper sheets or strips created and used by film labs. They are used in the printing process to ensure the correct lights and filters are used, resulting in a film with correct colors and shades of gray. Outside the United States, TIMING is referred to as GRADING.

TINT: Common to silent-era films, tinting is a means of dying the base of black and white film, usually after processing. Tinted prints have the color on the entire base, from edge to edge of the film including the perforated margins.

TONE: Common to silent-era films, toning is a means of changing the color of the silver in the b&w film (the non-white areas). The color in toned prints only affects the silver image, not the base.

TRACK ANGLE: The angle that the track of a helical scan recording makes to the edge of the tape. This corresponds with the scan angle of the helical recorder--the angle that the tape makes to the equatorial plane of the rotating drum head. If the track angle and scan angle do not correspond, mistracking will occur. See CURVATURE ERROR.

TRANSFER: The administrative and physical movement of records from one agency or place to another, usually from the creating body to the archives. See COPY. Also called migrate, refresh.

TRI-ACETATE: See ACETATE

UV Filter: A material used to filter the ultraviolet (UV) rays out of visible light. Ultraviolet radiation is potentially damaging to library, archival, and museum objects and more is present in sunlight and fluorescent light than in incandescent light. Removing UV radiation from storage, use, and exhibition spaces can reduce the rate of deterioration of library materials stored there. Usually a UV filtering material is placed over windows or fluorescent light tubes, or over glass used in framing, or in exhibition cases. Certain acrylic sheet materials have UV filtering properties built in.

VIDEO: The term used to describe visual material in a standard 30 frames-per-second electronic form. A video monitor is a unit that looks like a TV set but does not have antenna terminal connections. Instead, one or two cables

are connected directly, that is, without the need to select a specific channel because there are no channels. See MOVIES, TELEVISION, SCANNING LINE RATE.

VINEGAR SYNDROME: Characteristic of the decomposition of acetate-based magnetic tape where acetic acid is a substantial by-product that gives the tape a vinegar-like odor. After the onset of the vinegar syndrome, acetate tape backings degrade at an accelerated rate. The hydrolysis of the acetate is catalyzed further by the presence of acetic acid by-product.

VINYL: The word vinyl is imprecisely used to refer to any of a number of plastics, many of which are not appropriate for use in preservation. For specific safe plastics, see POLYESTER, POLYPROPYLENE, POLYVINYL ACETATE, ACRYLIC.

VISUAL RECORD: Material composed of images rather than words. may include photographs, films, and paintings.

WIND OF THE FILM: Term describing the relative position of the emulation and perforations of single-perf film. Film can be either A-WIND or B-WIND. In B-WIND film, when the film is held vertically, the end of the film comes off the reel downward from the right side, with the perfs on the edge away from you and with the base side facing up.

Glossary of Terms Used in “Electronic Language Repositories”

ANALOG SOUND RECORDING: Refers to electronic transmission accomplished by adding signals of varying frequency or amplitude to carrier waves of a given frequency of alternating electromagnetic current. Broadcast and phone transmission have conventionally used analog technology. A modem is used to convert analog to digital information to and from your computer.

ANNOTATIONS: Any descriptive or analytic notation added to describe an artifact, in the case of museums, or, in the case of linguistics, raw language data.

ASCII: De facto world-wide standard for the code numbers used by computers to represent all upper and lower-case Latin letters, numbers, punctuation, etc. There are 128 standard ASCII codes each of which can be represented by a 7 digit binary number.

ASYNCHRONOUS/SYNCHRONOUS LEARNING ENVIRONMENT: Associated with lessons, courses, and degree programs that utilize the Internet as an education/communication medium. Asynchronous education uses technologies that do not require teacher and learner to meet on a schedule. Technology tools usually include e-mail, bulletin boards, white boards, power-point presentations, graphic presentations, Internet-enabled testing, and other like tools. Synchronous education requires the teacher and learner to schedule live meeting times. Technology tools can include telephony, java chat, teleconferencing, access node, and related technologies.

BROKEN LINK: Refers to a resource that cannot be located because the Uniform Resource Locator (URL) is not valid, the resource the link points to does not exist, or the server that contains the resource is busy or is having other technical difficulties.

BULLETIN BOARD: An area of a Web site where users can post messages for other users to read.

CIDOC CRM: A set of standards and protocols that connects, upright and horizontally, the heterogeneity of various cultural heritage collections, through valid data processing research. This makes it possible to find, for example, all materials concerning a particular museum or cultural subject.

COMMON STYLE SHEETS (CSS): Typically used to provide a single "library" of attributes used to develop codes that are used over and over throughout a large number of related documents, as in a web site. This allows web pages to render correctly in different search engines and web environments.

CULTURAL PROPERTY: Works of man or the combined works of nature and man, and areas, including archaeological sites, which are of outstanding universal value from historical, aesthetic, ethnological or anthropological points of view (World Heritage Convention, Article I, 1972).

DATABASE: An electronic filing system with tools that can be used to find information or objects filed.

DIGITAL SOUND RECORDING: Recorded and stored sound as a series of numerical values rather than fluctuations in amplitude.

DIGITIZATION: Synonymous with scanning. The conversion process from printed paper, film, or some other media, to an electronic form where the page is represented as either black and white dots, or color, or grayscale pixels.

DISTRIBUTED DATABASE: A database in which portions are stored on multiple computers within a network. Users have access to the portion of the database at their location so that they can access data relevant to their tasks without interfering with the work of others.

DUBLIN CORE: A cross-disciplinary effort to define elements that help in searching for information on the Internet. The Dublin Core Element Set comprises fifteen elements which together capture a representation of essential

descriptions of resources available through libraries of documents and text on the Internet. Usually the Dublin Core is used in relationship to metadatabases.

E-LEARNING ENVIRONMENT: A computer interface with tools designed to enable education via the Internet, network, or a standalone computer.

ELECTRONIC LANGUAGE REPOSITORY: A storage place that electronically stores, usually on a computer or placed on the Internet, documents, recordings, films, information, photographs, data, data about data, and other items about a language that can be cataloged and accessed for some purpose important to preservation, scholarship, work, or avocation.

ELECTRONIC LIBRARY: A collection of materials normally found in a library that have been digitized and put into an Internet format. Sometimes a collection of links to other web pages that contain books, articles, essays, graphics, sound, or other information that can be reviewed by users of the virtual library. Interchangeable with Virtual Library.

E-MAIL: Software that allows users to send electronic communications to electronic addresses.

FLAT-FILE FORMAT: A file that has no structured interrelationship between its data records. A text document without formatting structure is considered a flat file (www.webopedia.com).

GLOSSING: In linguistics a shining, or a clarification, or a highlighting of a word or phrase or language element.

HARD DISK STORAGE: A magnetic disk on which you can store computer data. The term hard is used to distinguish it from a soft, or floppy, disk. Hard disks hold more data and are faster than floppy disks. A hard disk, for example, can store anywhere from 10 to more than 100 gigabytes, whereas most floppies have a maximum storage capacity of 1.4 megabytes.

HTML: Hypertext Markup Language, the coded format language used for creating hypertext documents on the World Wide Web and controlling how Web pages appear (**http://www.getnetwise.org/glossary.php**).

INSTANT MESSAGING: A service that alerts users when friends or colleagues are on line and allows them to communicate with each other in real time through private online chat areas (Microsoft).

INTELLECTUAL PROPERTY: Property that enjoys legal protection and stems from the exercise of the mind. Includes patents, trademarks, copyright, design protection, and some minor rights.

INTERLINEAR TEXT: Written materials presented with two or more lines of annotations for each line of text in order to help linguists document meanings, context, and nuance.

INTERNET ENABLED DATABASE: Also called web database. An electronic filing system designed to use the Internet's capabilities for finding and sorting over distance. Also an electronic filing system designed using a computer programming language designed to maximize Internet performance, e.g., Java, XML, etc.

JAVA: A high level computer programming language developed by Sun Microsystems designed to take advantage of the attributes of the Internet.

JAVA CHAT: A software program designed to provide real time communication between two or more users over distance that was developed using the Java programming language.

LANGUAGE FOSTERING: A term used in linguistics. Nurturing a language that is falling into disuse and is thus threatened.

LIBRARY CATALOGING SYSTEMS: A list or itemized display used in a library to help patrons find what they are searching for. Examples: Dewey Decimal system, Library of Congress system.

LINKBOT SOFtware: A bot is a software program that performs repetitive functions, such as indexing information on the Internet. A software program that looks for broken links in a web page.

MEMORY (COMPUTER): Internal storage areas in the computer. Data storage that comes in the form of chips. Usually used as a shorthand for physical memory, which refers to the actual chips capable of holding data. Some computers also use virtual memory, which expands physical memory onto a hard disk (www.webopedia.com).

METADATABASE: "Data about data, or information known about an image in order to provide access to the image. Usually includes information about the intellectual content of an image, digital representation data, and security or rights management information." Internet enabled databases are databases designed to function effectively in Internet environments.

MORPHEME: A minimal meaningful language unit that cannot be divided into smaller units.

MPEG-21: Short for ***M**oving **P**icture **E**xperts **G**roup,* and pronounced *m-peg,* a working group of ISO. The term also refers to the family of digital video compression standards and file formats developed by the group (www.webopedia.com).

MULTI-MEDIA: The combination of several forms of media in the communication of information. These various forms include audio, video, text, graphics, fax and telephony (morse.colorado.edu).

ORAL HISTORY: A method of gathering and preserving historical information through recorded interviews with participants in past events and ways of life using videotape, tape recorders, digital recorders, or some other storage medium (Oral History Association, http://omega.dickinson.edu/organizations/oha/).

PARSING: To divide a sentence into its elements, identifying the parts of speech and their relationship to each other. Describe or analyze a sentence's grammar.

PHONEME: The smallest unit that can be contrasted with other units in the sound system of a language.

PLATFORMS: *The underlying hardware or software of a computer system, e.g., MS-DOS vs. UNIX vs. OS vs. LINUX.*

PORTABILITY: The ease with which a system or component can be transferred from one hardware or software environment to another.

PORTAL: A Web site or service that offers a broad array of resources and services, such as e-mail, forums, search engines, and on-line shopping malls (www.webopedia.com).

POWERPOINT PRESENTATIONS: Microsoft software designed to allow users to easily develop and present slide shows using their computers.

REPOSITORY: A facility or place where artifacts, documents, and other things can be deposited for storage, safekeeping, or research.

RIGHTS: A legally recognized entitlement to do something to or with content (www.webopedia.com).

SCHEMA: A database-inspired method for specifying constraints on XML documents using an XML-based language. Since schemas are founded on XML, they are hierarchical, so it is easier to create an unambiguous specification, and possible to determine the scope over which a comment is meant to apply (Sun Microsystems).

SECURITY (COMPUTER): Technological and managerial procedures applied to computer systems to ensure the availability, integrity and confidentiality of information managed by the computer system (www.tsl.state.tx.us/ld/pubs/compsecurity/glossary.html).

SMIL: Synchronized Media Integration Language, a markup language designed to present multiple media files together. For instance, instead of using a video with an integrated soundtrack, a separate video and sound file can be used and synchronized via SMIL. This allows users to choose different combinations, e.g., to get a different language sound track, and permits text transcripts to be optionally presented; both options have accessibility benefits (bobby.watchfire.com).

TELEPHONY: The science behind telephones: sound translated into electrical signals, which is transmitted and then translated back into sound. This is also used to refer to computer hardware and/or software that functions like telephone equipment.

TRIBAL CARE: Refers to information specified by traditional owners about how to respectfully and/or appropriately deal with the resource.

VIRTUAL LIBRARY: A collection of materials normally found in a library that have been digitized and put into an Internet format. Sometimes a collection of links to other web pages that contain books, articles, essays, graphics, sound, or other information that can be reviewed by users of the virtual library. Interchangeable with *Electronic Library.*

WHITE BOARD (WHITEBOARD): An area on a display screen that multiple users can write or draw on. Whiteboards are a principal component of teleconferencing applications because they enable visual as well as audio communication (www.webopedia.com).

XML (XrML): eXtensible Markup Language. A subset of SGML constituting a particular text markup language for interchange of structured data.

Glossary of Terms Used in "Building a Physical Repository"

CONCRETE: A composite material that consists of a binding medium embedded with fine aggregate (typically sand) and coarse aggregate (typically gravel). In construction, concrete is a composite building material made from the combination of aggregate and cement binder. The most common form of concrete is portland cement concrete, which consists of mineral aggregate (generally gravel and sand), portland cement and water. After mixing, the cement hydrates and eventually hardens into a stone-like material. When used in the generic sense, this is the material referred to by the term concrete. Concrete has great compressive strength, but little tensile strength. To overcome this limitation, concrete is most often constructed with the addition of steel reinforcement bars (rebars), steel mesh, or cables, to produce reinforced concrete. Concrete is also made with asphalt or epoxy as a binder.

CONCRETE BLOCK: A hollow concrete masonry unit made from portland cement and suitable aggregates such as sand, gravel, crushed stone, bituminous or anthracite cinders, burned clay or shale, pumice, volcanic scoria, air-cooled or expanded blast furnace slags, with or without the inclusion of other materials.

DEAD LOAD: A constant load on a structure due to the weight of the supported structure itself.

DUROCK: USG's mold-resistant Durock Cement Board substrate, which is made from portland cement that is sandwiched between layers of inorganic fiberglass mat, was developed to provide a water-resistant base for tiled surfaces installed in wet areas. The product will not swell, soften, decay, delaminate, or disintegrate when exposed to water, USG says. The ½-inch-thick standard cement board panels were designed to work with bathtub and shower surrounds walls, ceilings, and floors. The boards are also offered in 5/16-inch thickness for use with countertops.

Available warranties extend for as long as 30 years and typically cover the replacement of all affected components in the installation, from the substrate to the tile and grout, as well as labor costs.

GREENROCK: Moisture resistant drywall is called greenrock or greenboard and is specially treated for use in bathrooms and other damp areas.

HEBEL BLOCK: An autoclaving process: a mixture of cement and other ingredients heated in an autoclave oven. Particles expand and create air pockets and it's a very lightweight concrete interwoven throughout with large air holes, but still a solid piece that can be sawed. Large blocks, about 2 ft by 2 ft, are light enough to be picked up by a single person. They can be anchored in place with rebar or a threaded rod and stuccoed over on the outside. Can carve it to any shape: circle, curves, etc. Very strong. Has been used in Europe for years and years. Hebel makes its blocks from a mix of cement, lime, sand, gypsum, water and an expanding agent. It's hardened in a mold and then steam-cured under pressure. The weight is far less than typical concrete blocks. The material is available in different densities and sizes. It can be cut with a handsaw.

HYDRAULIC CEMENT: In hydraulic cement concrete, the binder is cement paste, a mixture of hydraulic cement and water and possibly one or more admixtures. Hydraulic cement is cement that sets and hardens by chemical reaction with water (hydration) and is capable of doing so under water.

INSULATED CONCRETE FORM: Clay styrene forms which have various configurations, filled with concrete and rebar on the inside, giving them incredible structural strength like concrete. They then have up to two inches of applied styrene on either side, which is extremely good insulation for climate control. Inside you normally have a strip 15 inches off center that you can attach sheetrock to or put shelving on, and you can stucco over them on the outside. They have longevity, there is no wood involved, so it does not make a good home for pests.

INSUL-DECK: Insul-Deck is a stay-in-place insulating concrete forming system for joisted concrete floors and roofs. Utility chases, steel beams and furring strips integrated within form Unique, patented manufacturing process. Any type of interior finish can be mechanically attached to the integral steel furring strips with drywall screws. Insul-Deck panels easily interlock with a tongue-and-groove design which forms the bottom of a 5" wide concrete T-beam, or joist. Rebar reinforces each joist. Steel mesh reinforces the floor surface. The panels are produced by a continuous molding production line, able to integrate the insulating capabilities of EPS with the structural strength of metal inserts. Insulation and beam depth can be varied according to specific job requirements. The ability to vary the depth of the concrete beam can allow clear spans up to 40 feet using Post-Tensioning. The sheet rock is attached with normal drywall screws directly to the metal furring strips. These are an integral part of the panel with a spacing of 12 inches on center. One of the unique characteristics of this product is the continuity of insulation that is assured by the tongue and groove connection between the panels. The insulation value is obtained in an optimal way, at the factory and is not subject to the skill of the installers. These factors combine to give you an insulation without thermal bridges. Insul-Deck's ability to span up to 40 ft. without center supports can allow you to build clear span basements. The use of the system can create large open, complex, vaulted interior spaces. The system allows for a positive roof connection to the wall units, a major concern in hurricane prone areas of the country.

LIVE LOAD: A moving, variable weight added to the dead load or intrinsic weight of a structure.

LOAD-BEARING: Capable of bearing a structural load; "a supporting wall."

PORTLAND CEMENT: Hydraulic cement (cement that not only hardens by reacting with water but also forms a water-resistant product) produced by pulverizing clinkers consisting essentially of hydraulic calcium silicates, usually containing one or more of the forms of calcium sulfate as an inter ground addition. Portland cement is the most common type of cement in general usage, as it is a basic ingredient of concrete and mortar. It consists of a mixture of oxides of calcium, silicon and aluminum. Portland cement and similar materials are made by heating limestone (as source of calcium) with clay or sand (as source of silicon) and grinding the product. The resulting powder, when mixed with water, will become a hydrated solid over time.

RADIANT HEATING AND COOLING: Hot or cold water running through tubes can heat or cool. Flexible tubing that does not leak. Heating a building by radiation from panels containing hot water or electrical heaters. When the radiant heat system is turned on, electricity is forced through the conductive heating material. For high voltage radiant heat systems, line voltage (110 V.) of electricity is forced through the heating cable. For low voltage systems, the line voltage is converted to low voltage (8-30 V.) of electricity in the control unit (which contains a step-down transformer) and this low current is then forced through the heating element. The low voltage heating elements used are either Tuff Cable or Zmesh.

The heated material heats the flooring until it reaches the right temperature set by the floor thermostat. The radiant heat then passes through the floor and continues to heat other objects in the room (tables, chairs, people). The heat will continue to heat the room and its objects up to the ceiling. Radiant heat gives the most consistent room temperature from floor to ceiling compared to any other heating system. There is no air movement with radiant heat.

Ceiling mounted systems are usually best for combined heating and cooling systems. Floor systems are best for heating-only systems (provided the floor isn't covered with heavy carpets). Floor coverings such as carpeting reduce the output of heated floors.

The amount of heat transfer depends on the direction of heat flow. Air in contact with a cooled ceiling panel will naturally fall as it is cooled increasing the movement of air over the panel. Conversely, air in contact with a warm ceiling will stratify at the ceiling and have low convective heat transfer. Radiant systems are the ideal choice in buildings or rooms where air quality is critical (hospitals and operating rooms). With radiant systems, only the ventilation air has to be filtered instead of the complete HVAC system as in air-based systems.

SHOCKCRETE: A form of concrete that is sprayed over mesh or forms.

SIGNAGE: The design or use of signs and symbols.

SLUMP BLOCK: Concrete masonry units (produced so that they "slump" or sag in irregular fashion before they harden) are used in masonry wall construction. To give slump block its character, the mix "slumps" when removed from its mold. Because of the unpredictable roll in texture when removing the block from the mold, units take the appearance of hand made adobe**.**

STUCCO: A fine plaster or cement used as a coating for walls or for decoration. It may be used to cover less visually appealing construction materials such as concrete blocks, steel, or adobe. Modern stucco is made mostly of Portland cement. It provides wall coatings with a defined structure. Traditionally, stucco has been used as a sculptural and artistic material.

THERMASTEEL: The ThermaSteel Building System is a unique patented process utilizing the power of composite technology. A structural grade, opposing double steel framing members (G-90 galvanized, 24, 20, or 18 gauge) with rigid, fire retardant Modified Expanded Polystyrene Resin (EPS) bonded to the steel frames, forms a thermally broken, light weight (48-50 lb. for 5 1/2” thick x 4’0” wide x 8’-0” high) composite building component that provides structural framing, insulation, sheathing, and a vapor barrier in one, fast, high-tech step. ThermaSteel components may be used for exterior and interior walls, partitions, floors, and roofs. Combinations of pre-insulated components are screwed together to form a unique high performance energy shell that is fast, lightweight and extremely strong. with superior thermal properties.

The ThermaSteel system has been approved for use in all climatic regions and seismic Zone 9 in Russia. Senior Housing projects, hotels and condominiums are being constructed in many areas. A standard ThermaSteel panel with a modified exterior has passed the Hurricane Lab tests prescribed by Miami-Dade County, FL using protocol PA 201,202,203. The ThermaSteel System is being used in every facet of construction.

The expandable Polystyrene resin used in ThermaSteel panels is modified by the supplier of the raw material to resist flame spread and is in full compliance with the ICC building codes and has received HUD approval. The use of Expanded Polystyrene (EPS) as rigid thermal insulation gives the ThermaSteel panel the following advantages:

- R-Values are consistent and stable due to the closed cellular structure, which contains stabilized air
- Components are rigid and lightweight

- Contains no CFC's or HCFC's. There is no off gassing
- Contains no formaldehyde
- Resists fungus, decay and moisture gain
- Will not rot–highly resistant to mildew
- Environmentally safe
- Lessens risks of cancer and of respiratory and skin irritations from certain other types of insulation
- No food value for termites and other common wood eaters

Appendix B

Native Languages Archives Respository Project
Advisory Work Group

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Appendix C

American Indian and Alaska Native Architects and Engineers

The American Indian Council of Architects and Engineers (AICAE) is a non-profit corporation established in 1976. Its membership is comprised of American Indian architecture, engineering and design professionals throughout the United States.

AICAE members represent numerous and varied professionals including:

Architects
Planners
Landscape Architects
Cost Estimators
Project Managers
Interior Designers
Structural Engineers
Civil Engineers
Electrical Engineers
Facility Managers Mechanical Engineers
Land Surveyors
Construction Managers
Equipment Planners
CADD Technicians

Typical project types and services provided by AICAE members include:

Utility Systems
Educational Facilities
Health Care Facilities
Museum/Cultural Centers
Botanical Gardens
Interpretive Centers
Hotels and Resorts
Restaurant/Kitchen Design
Gaming Facilities
Residential Projects
Commercial Facilities
Industrial Facilities
Transportation Systems
Highways
Water & Wastewater Systems
Flood Control
Irrigation Systems
Master Planning
Need Assessments
Project Management
Feasibility Studies
Architectural Design
Cost Estimating
Construction Management
Equipment Planning
Interior Design
Programming
Environmental Services
Energy Management

AICAE Membership Directory:

Anthony J. Monroe
P.O. Box 907
Wadsworth, NV 89442,
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ASCG Incorporated
Architectural/Engineering/Surveying/Inspection Services
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Anchorage, AK 99503
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Cascade Design Professionals, LLC
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Appendix D

Native Heritage Language Programs: Guidelines

By Darrell R. Kipp, Founder and Director, Piegan Institute

The following Guidelines are designed primarily for those Native heritage language communities inspired to develop a language program on their own. It is in no way a nod away from tribal, public school or tribal college efforts, to which they also apply. However, the current trend of development of Native American language programs is almost exclusively in the hands of small groups of interested individuals within Native nations and Native language communities.

The enactment of the Native American Languages Act in l990 was an important benchmark in a remarkable and growing movement in Native American communities to revitalize Native heritage languages. Today, the issues surrounding Native language revitalization are chronicled daily in local and national media outlets. Front page newspaper coverage, national and regional magazines, television and radio continue to provide stories of fledging language programming across the nation. Established Native language programs, such as Punano Leo Immersion Schools in Hawaii, the Nizipuhwahsin School in Montana and the Akwesasne Freedom School in New York, report being nearly overwhelmed with tribal delegations seeking information on starting a Native heritage language program in their community.

In the early 1990s, a series of national gatherings under the banner of Native American Language Issues (NALI) focused entirely on tribal language revitalization. The last in the series was held at the University of Hawaii at Hilo in l994, with over 1,000 tribal participants from North American Indian communities. Inspired and enchanted by the powerful example set by the Punano Leo Hawaiian Language programs, and overwhelmed by the closing ceremony, countless individuals acted on the advice of Punano Leo Founder Kauanoe Kamane and returned home to “Just do it!”

Since then and especially in the last five years, more and more Native nations and language communities have embarked on developing language programs. Today, it is likely that every Native language community has the makings of an active group in the field. Unfortunately, most do not know what direction to take or what logistics to employ. Pressured by time, diminishing numbers of speakers and severely limited funding and classroom space, most are at a loss to know how they might successfully implement programming and overcome the obvious obstacles.

The Basic Premises Needed to Develop a Native Heritage Language Program

Never ask permission or beg to save the language when preparing to develop a Native heritage language program. In other words, the rights and responsibilities associated with a Native heritage language belong to everyone in the Native nation or Native language community. Those Native individuals accepting the responsibility of revitalizing their language have the right to undertake that revitalization and do not have to approach another entity for permission to begin.

Never beg for help. Explain and outline the needs of the group, but never beg or demand assistance. Instead, seek out like-minded people and create a chartered private nonprofit designed exclusively for language revitalization activities. Obtain a tax-exempt determination from the Internal Revenue Service (IRS) and apply for an Employers Identification Number (EIN) to legalize the work of the group. It is also recommended to obtain the services of a Certified Public Accounting (CPA) early on, even if the group has little in the way of funds. Having a CPA firm taking care of financial and reporting tasks will free the group from anxiety attacks, crisis management, and allow a full reporting to the community on a regular basis. In addition, it allows the group to focus on language programming and fund raising.

Do not debate the issues associated with developing a language program. Never bring the tribal language into any arguments, or denigrate it with debate. In many communities a great deal of negative confusion surrounds community language revitalization. The many years of institutional conditioning and prohibitions against speaking, teaching, learning or studying the tribal language were successful and have resulted in an incoherent assessment of the worth of a tribal language.

Avoid at all costs debating issues connecting to this longstanding dogma and stand firm in the honorable calling to work in a positive manner with the language. Debate will only cause a loss of energy needed to complete the difficult tasks at hand. More dangerously, debate may induce doubt and frustration and weaken the resolve of the group. In most cases, the longstanding debate about dialect, correct pronunciation, word selection and "old" versus "new" language forms becomes trivial when compared to the looming death of the language. Those groups successful in rejuvenating their language experience a dynamic resolution of many of the issues confronted early on in their development.

Once the group has established an immersion classroom, do not debate with public school educators about methodologies or classroom content. They are trained in a format very different from those of immersion classrooms and will apply an inappropriate standard to the debate. There is no need to explain or apologize for the decision to use the Native language exclusively as the medium of instruction. Refreshing and high-caliber scientific investigation supports the immersion format and, in time, will become more dispersed among mainstream educators.

Be action orientated and rely on the action process as a guide in determining direction, logistics and programming of the effort. Many of the questions posed in development answer themselves in time as long as the group maintains a dynamic approach, always moving ahead. Do not allow any single issue to stymie continued development. It is often useful to set aside a contentious issue for a while and move on to other pending issues, keeping in mind that the "process" of development is at work and it is likely many issues will resolve themselves. Although consensus is a wonderful goal for an organization to achieve in decision making, there are times when an individual in the group must act decisively. Generally, a group can determine a leader (without formal electioneering) based on a person's capabilities and actions. It is not recommended that developing groups in language programming embrace the standard hierarchical form of elected officers over the model of people simply working together. It is hoped that there will come a time when the organization is much larger and demanding of a more formal structure and governing system.

Show, don't tell. It is important that the group developing the language programming become action orientated at all times. It is of little value to constantly talk about what should be done, when time can be better spent doing something tangible. It is important for an informal group to establish itself as an organization by obtaining a post office box, opening a business savings and checking account, obtaining donated office space and equipment, acquiring a telephone (without staff, an answering machine is paramount) and doing the myriad other tasks associated with setting up shop. Veterans in the language vitalization movement remind aspiring program developers that, once involved, it is a very difficult to bail out. People in the language movement find themselves leaving behind established careers and molding new ones out of their involvement in the movement. The crucial point in development is when children in the program begin to go home and into the community speaking the tribal language. This is immediate goal of every program. All else is secondary or supportive. There is only one priority of the program: teach children to speak the Native language. Show the community the possibilities and realities, and stop telling what could or might happen in a perfect world.

Specific Activities in Developing a Native Heritage Language Program.

The most important initial task is to collect information on the Native heritage language and its speakers. A community survey to establish the status of the language is an important first step in the development of a Native heritage language program. If funding and expertise are available, an in-depth survey can be done. Otherwise, even a perfunctory check must be done. Most Native nations

and language communities have never taken a serious accounting of the status of their languages. Consequently, many tribes find themselves in a precarious position, with only a small number of elderly speakers available to assist. Due to health and economic factors, these individuals often are not in the position to readily assist. Again, a survey can provide warning signals to a group and also give a timeline on the life of their language.

The Blackfeet Tribe of Montana conducted a full scale survey in l985, under the sponsorship of the tribal college, and findings revealed all the fluent speakers were 50 years old and older. The survey also revealed that no children in the tribe spoke the language. Today, the largest numbers of fluent speakers are in their seventies and eighties, as predicted by the survey. During the interim period, language programming was started in the tribal Head Start programs, the tribal college and in a private immersion school. Yet, despite being forewarned, the Tribe remains hard pressed to preserve its language.

There are numerous decisions to be made in developing a survey, particularly respecting definitions, such as "fluent speaker." Agreeing on definitions and designing the survey form can bring a great deal of clarity to the issue at hand, which is the status quo of tribal knowledge among participants. Questions on historical and contemporary events, music, dance and art practitioners, photographs, films and audio and video tapes and related language collectibles may prove of helpful in determining an overall status check on the language. (See Chapter 4, "How to Build Infrastructure: Tools for Preserving: Model Heritage Language Survey.")

While it is important to make plans to conduct a full-scale survey as soon one can be done, any level of survey in the interim will reveal much needed information. For example, individuals not readily identified as speakers will often come forth and be counted. There are reasons that many individuals do not openly speak their heritage language. Many people, although they are proficient speakers, do not consider themselves "fluent" speakers. Many people "understand" the language well, but do not consider themselves speakers. Many have simply gone quietly about their lives and never made an issue of their gift. Whatever the case, it is important that the status of the tribal language be monitored by the Native American language group, since it is the river upon which they navigate. The Indigenous Language Institute (www.indigenous-language.org) in Santa Fe, New Mexico, has an excellent handbook available for guidance in this endeavor.

Once the language group organizes, its organization should be chartered with the tribal or state government. Becoming a legal entity will enable the organization to receive private, tribal, state and federal funding. Once a group of founders – the people joining together in the language vitalization effort -- is established, a list of actions, tasks and goals should be outlined. A common goal is to research, preserve and promote the Native language. These goals may be further described as collecting and reviewing Native language materials, developing seminars and educational programs, building facilities, publishing written, audio and video learning materials and any other elements desired by the group. In addition, the group should develop a three-year plan of action – a five-year plan at the most -- outlining basic activities. It need not be a sophisticated document, but it should be preserved and used as a work plan.

The organizing group can get assistance in developing the charter and by-laws of the group, but should not belabor the effort. Most bookstores carry manuals on incorporating nonprofits which include computer disks with generic charters and by-laws. These manuals give step-by-step instructions and include reliable instructions how to become IRS-certified. The organization will be issued an Employer Identification Number (EIN) and becomes a legal entity capable of carrying out the full spectrum of business activities needed to promote and preserve the Native language. The group should then obtain the services of a Certified Public Accounting (CPA) firm, in order to assure sound financial reporting and accounting.

Start small; dream big. The most successful tribal language programs today began as small, self-supporting organizations. All incorporated as private nonprofits at the onset, obtained IRS certification and relied heavily on the collective expertise, dedication and involvement of a small group

of people. As is the common situation today they faced the classic list of obstacles: limited language expertise, funding and space.

The next action step is to begin seeking funding sources. Again, successful programs today began action orientated programs with a minimum of funding resources. Those groups who operate under the fallacy that “writing a grant” is a magic elixir for success will be quickly disappointed. One of the most successful programs today still utilizes the founding rule of equal pay for all employees based on available revenue. The staff often conducted elementary fundraising events, such as bake sales, to make payday. Another program barely managed to pay minimum wage in the beginning, but it now offers a pay scale comparable to professional level salaries. The rule is simply that fundraising is a daily activity and seldom, if ever, goes away. Individuals and foundations respond to action-orientated programming more than they do to grant applications. Careful attention to developing a “hot” mailing list, composed of individuals familiar with the work and results of the organization, cannot be emphasized enough. A twice-yearly mailing to friends of the organization will begin to pay excellent dividends within a few years.

Irrespective of the success of organizing, researching and fundraising, the most critical goal of the Native heritage language programs is to achieve full immersion with their students. Many programs, even those deemed successful with several years of experience, still struggle to attain full immersion with their students. Each program will ultimately produce a child speaking his or her Native language. That child will be like no other in the community, until another child achieves fluency. It is a slow process, fraught with obstacles, but majestic in its rewards.

Native Heritage Language Programs: Models

By Darrell R. Kipp, Founder and Director, Piegan Institute

Resources in Native Language Models

Only five out of one-hundred students ever obtain proficiency in standardized university and college language formats, according to Dr. James Asher, the designer of the most effective second language learning format, Total Physical Response (TPR). Thus, it can be assumed that those formats are not suitable Native language models. Unfortunately, most aspiring Native language programmers have limited background in language acquisition techniques, other than what they experienced in English, French or Spanish 101. These probably were replicated models of the university program the teacher attended and, according to Asher, not a suitable model.

An absolute must for all beginning and advanced language programs is attending a training seminar or at least an in-depth study of the training materials of the TPR program. Aspiring language teachers have to accept that it is impossible to memorize a language. The true learning of a second language requires "internalization" of the language, in the same fashion the first language was learned in the home. In other words, incorporating physical actions with language acquisition replicates the natural transmission of language in a manner similar to how children naturally acquire their first language. There are some variations of this method, but beginning programs would do well to stick to the time proven TPR method to assure immediate and successful results in their students.

The first and major breakthrough for beginning language programs occurs when the adults in charge refute the erroneous methods used for many years in standard language programs and fully embrace the TPR methodology. This is especially pertinent for Native language programs with little time or resources to waste.

Again, the successful immersion programs in existence today all began in somewhat the same fashion. Faced with limited resources, as well as likely not having a fluent speaker young or healthy enough to teach children, the then-fledging programs rented or borrowed space and simply began with what was available. No grant money, sophisticated curriculums or accredited staff marked these beginning efforts. Instead, what appeared was a single classroom staffed by one teacher (often a non-speaker of the Native language); a fluent Native language speaker (likely never to have taught before in a classroom); and a small number of pre-school age children. Lack of bus service, hot lunch programs or other support services did not seem to deter any of the parents who wanted their children in the program, so most schools focused on using the language for all their direction and support.

Amazingly, this remains the ideal model for beginning language revitalization groups hoping to produce proficient Native language speaking children within the year.

This model includes one of the other major successful Native language models: the Mentor Protégé format (also known as the master-apprentice model). When Native nations are down to the final hours of their language and only have elderly people who still speak the language, then the Mentor Protégé model becomes the needed step to revitalization. An older speaker works on a one-to-one basis with a younger person to learn the language as quickly as possible (they may use the TPR model to assist themselves), in order that the language can be transmitted to children by the protégé. This works extremely well in the model involving one room, one teacher/speaker and eight kids.

From this smallest conceivable second language format has emerged at least three of the strongest Indigenous language programs in the United States: the Akwesasne Freedom School, Nizipuhwahsin School and Punano Leo Immersion Schools.

It defies reason amongst many programmers that what amounts to a virtual “seed” can be nourished into six-figure annual budgets serving Native children in high academic formats, while revitalizing a Native language first and foremost. From these one-room models have emerged elementary and high school programs replete with new buildings. Punano Leo of Hawaii has become a full-blown university program, granting B.A. through Ph.D. degrees in Indigenous Language Studies.

Appendix E

Disaster Contingency Plan Quiz

- Have you read the entire Disaster Contingency Manual, cover to cover?

    1. What is your job title within the plan?
    2. What are your major responsibilities before a disaster occurs (i.e. pre-planning)?
    3. What are your major responsibilities once a disaster occurs?

- In the event of a fire alarm or an evacuation, where is our designated meeting place?

- If personnel or the general public refuse to leave the area, what should you do?

- How many exit doors do we have? How many regular exits How many fire doors?

- Where are the fire alarms in our office?

- Where are the closest two fire alarms?

- Do you know where fire extinguishers are located in the building?

- Where is the first aid kit located?

- Where is the electrical panel?

- Where are the flashlights? Where are the batteries?

- If there were a tornado or severe storm while you were at work, where should you go?

- Whom do you phone on the phone tree?

- Who declares the disaster, consequently putting the disaster contingency plan into effect?

- Where do you look in the disaster contingency manual for:

    1. a telephone number for Building Security to have them turn off the water?
    2. directions for packing wet materials for removal?
    3. your job description?
    4. a list of suppliers who rent dehumidifiers?
    5. staff home telephone numbers?
    6. what your first response should be in the event of a flood?
    7. what your job would be, from start to finish, in the event of a fire that resulted in smoke, fire, and water damage?
    8. summary instructions for treating water-damaged photographs?

- Name eight things that you can watch for to help prevent a disaster in the office.

- Name six pieces of electrical equipment in the office that could be the source of an electrical fire.

Appendix F

Disaster Prevention/Safety Checklist

The following is a checklist

- to maintain a comfortable and safe environment for the use of a collection;
- to extend the life span of materials in the collection;
- to reduce the possibility of the collection's being damaged or destroyed.

1. Keep exits, aisles, corridors and stairwells unobstructed.

2. Ensure that all fire doors are kept closed. At the very least, those fire doors that protect the stacks should always be closed after office hours.

3. Ensure that emergency equipment (e.g. fire extinguishers, first-aid kits, rescue equipment, flashlights) is always accessible and in good working order. Do not, under any circumstances, place furniture, display cases, coat-racks, etc., in front of a fire extinguisher, or manual box fire alarm system. Ensure that fire extinguishers of the appropriate type for the materials in that location are available.

4. Close drawers of storage cabinets when not in use.

5. Never store collection materials directly on the floor. Avoid basement storage. Store more valuable materials on upper shelves or upper floors.

6. Do not leave any materials exposed, especially original documents, on desks or on tables overnight.

7. Do not use the stacks as a storage place for empty boxes, supplies, etc.

8. Maintain a stable environment in the institution, i.e. temperature and humidity.

9. Identify and store cellulose nitrate-base film safely apart from the rest of the collections and according to fire regulations. Have it copied at the earliest opportunity. (In addition to its high combustibility, cellulose nitrate slowly decomposes under normal storage conditions releasing gases harmful to collection materials, especially paper and film.)

10. Store valuable materials in fire-proof and dust-proof cabinets, preferably made of steel and treated with a non-corrosive, non-staining, and non-combustible paint.

11. Ensure that books are not shelved too tightly. This measure not only prevents user damage to the bindings when books are pulled off the shelves, but also ensures that, if flooding occurs, the water will not cause the books to swell to the point where they burst from their shelving units. This applies to a lesser degree to other materials.

12. Shelve materials so that they are set back a short distance from the edge. This precaution prevents user wear and the vertical spread of fire from one shelf to another.

13. Restrict eating and drinking to a designated area within the building, certainly not in the stacks and preferably not near them.

14. Ensure that appropriate standards (e.g. dust control and supplies storage) are established and met by janitorial staff.

15. Doors may be weather-stripped to minimize entry of dust and insects.

16. Do not allow any smoking in the building.

17. Store flammable and combustible materials in a safe, cool place out of sunlight, inside fire-proof cabinets. Store these materials in well marked containers. Do not store large containers on high shelves from which they may fall and break. "Shelf-lips" may be installed to help prevent materials from accidentally falling out. Keep all chemical and solvent containers closed, even when in use, to minimize the escape of flammable and toxic vapors and dusts into the air.

18. Ensure that air circulation is adequate throughout your institution.

19. Have electrical outlets, fixtures, equipment and appliances checked regularly by an electrician.

20. Ensure that electrical appliances (e.g. dehumidifiers, coffee urns, portable heaters) are operated at a safe distance from flammable materials, and that they are turned off when not in use.

21. Restrict the use of heat-generating equipment within stack areas (e.g. motors, transformers). Ensure that the transformers in fluorescent light ballast are thermally protected.

22. Use only non-flammable paints. Older, oil-based paints are highly flammable and some latex and acrylic paints will also burn. Take care to ensure that freshly painted areas are well-ventilated since wet paint gives off highly flammable fumes. (It should be noted that the use of fire-retardant paints may be hazardous.) Salt, the fire retardant agent in such paints can break down. The dust that is deposited throughout the institution will accelerate the deterioration of collections).

23. Examine the building design as well as its structure to determine all construction materials and their fire rating in consultation with the local fire department.

24. Heating, ventilation and air conditioning (HVAC) systems should be maintained, inspected, and tested in accordance with established safety practices. Heaters and ductwork should be kept free of combustible deposits. Such systems could spread fire through a building if not constructed with appropriate safeguards.

25. Ensure that ducts are made of metal and have automatic fire dampers. Clean ducts and vents regularly, since they gather dust and other combustible material which could ignite when close to motors or other moving parts.

26. Avoid using polystyrene or polyurethane foam insulation, since these materials catch fire easily and give off large quantities of smoke. Burning polyurethane foam also emits toxic fumes which may hinder escape.

27. Use non-flammable carpeting. The safest is wool fiber with hessian backing. Underlays made from rubber or plastic foams are all flammable, however, the polyvinyl chloride types tend to be self-extinguishing. Do not install carpet in stack areas. If flooding occurs, the carpeting will retain water and prevent drainage as well as create a problem in stabilizing temperature and relative humidity in the area affected.

28. Use non-combustible fabrics such as fiber-glass where possible. Have other textiles and fabrics treated to reduce their flammability. Plastic fabrics vary greatly in their flammability; many melt when hot and form a molten plastic that can cause serious burns. Flame proofing certain materials such as cellulose acetate and nylon may be difficult.

29. Use waste-paper baskets made from a non-combustible material and have them emptied regularly. Have separate safety receptacles for flammable materials, such as rags soaked in solvent. Inform maintenance employees that the contents of these receptacles are not to be mixed with those of other waste receptacles.

30. Safe containers should be provided for the collection of waste paper, smoking materials, and other refuse. Waste and rubbish should be removed from the premises at regular intervals.

31. Paint rags and custodian's oily cloths should be disposed of immediately as they are subject to spontaneous combustion.

32. Holiday decorations should always be of fire-retardant material and should be placed well away from sources of heat, such as light fixtures.

33. Frequent inspections should be made by a designated staff member to detect unsafe conditions and to impress upon the staff the importance of good housekeeping.

34. Portable heaters and small heat-generating appliances should not be permitted in the institution.

35. Avoid storage in or below areas through which service pipes pass. Shelving in areas susceptible to water damage should be covered with plastic sheeting.

36. Have service pipes checked regularly and have pressure alarms installed to indicate trouble. Monitor areas where there are pipes and windows that may be subject to condensation.

37. Locate all your drains and have them checked regularly.

38. Floor alarms should be installed in susceptible areas to indicate water leakage. Ideally, these alarms should be connected to a central alarm system.

39. Have the water sprinkler system checked periodically.

40. Ensure that washroom facilities and work areas are safely separated from the stack areas.

41. Never let water run attended.

42. Install shelving at least 2" away from inside walls and 12" away from outside walls so as to avoid damage from condensation, burst pipes within walls, water running down walls from sprinkler systems, etc. Install bottom shelves at least 6" above the floor.

43. Inspect the roof regularly for leaks, especially in the case of flat roofs.

Emergency Salvage of Water Damaged Papers[i]

Mold	Many people are sensitive to mold. Also, some mold species are toxic. If any health effects are observed when treating mold, consult a doctor or mycologist (the local extension service may be able to help) before proceeding. The best way to prevent or stop an outbreak of mold is to remove items from environmental conditions that encourage mold growth: high temperature, high relative humidity, stagnant air, and darkness. The first priority is to dry moldy items (see instructions for drying below). If wet and moldy materials cannot be dried immediately they may be stabilized by freezing. Placing damaged items in a personal or commercial freezer will not kill mold. It will, however, put the mold in a dormant state until time and an appropriate treatment environment are available. Manageable quantities of frozen items may then be defrosted and treated at leisure. Active mold looks fuzzy or slimy. Dormant mold is dry and powdery. Do not attempt to remove active mold; it may only spread or smear. Mold which remains active after freezing or after the host material appears dry may be treated with brief (1-2 hours) exposure to ultraviolet radiation from the sun. Extreme caution must be exercised when treating materials outdoors: too much radiation will accelerate deterioration and may cause fading; wind may cause physical damage if items are blown about; and high relative humidity or condensation caused by quick temperature changes may actually exacerbate mold growth. Dormant mold spores will reactivate as soon as conditions are favorable. They should, therefore, be removed from items and may be brushed or vacuumed away. This treatment should be performed outdoors where other materials and spaces will not be "infected." When brushing mold use a soft, clean, light-colored brush and a gentle pushing motion. Change soiled brushes often to prevent spreading mold from one object to another. When vacuuming, screening material placed over the nozzle of a low suction vacuum will capture loose bits of the item which may inadvertently dislodge.

Cleaning and Drying	Paper is very fragile when it is wet. Handle it carefully. In some cases it may be desirable to remove caked on mud and dirt. Dirt left by receding flood waters may be contaminated. Precautions such as the use of rubber gloves should be taken. If items are still wet, agitating them in a bath of clear water will remove excess dirt. This treatment should never be attempted for images which are blurred, feathered, or faded as a result of flood damage.
Air Drying	Wet books, documents, or photographs which cannot be air dried within two days should be frozen to inhibit mold growth. Circulating air will effectively dry most items. Physical distortions may result, but document information will be saved. To provide optimal air drying conditions, fans should be positioned for maximum air circulation (do not aim air flow directly at drying materials). Blotting material for air drying should be clean and absorbent. Options include: blotter paper, unprinted newsprint paper, paper towels, rags, mattress pads, etc. Screening material (such as window screens) well supported and stacked with space between them provide an excellent compact drying surface. The porous surface assists air circulation and promotes drying. Without intervention glossy materials such as paperback book covers, magazines, art books, etc. are likely to stick together. If they are highly valued, these items should be the first priority for salvage. Loose glossy materials should be spread out in one layer for air drying. Bound glossy materials must be interleaved between every page to prevent sticking. Wax paper should be used as interleaving material. Volumes of glossy paper dried in this way may suffer considerable physical distortion.
Books	Place interleaving material between the text block and the front and back covers. If time and supplies allow interleaving, material should be placed intermittently throughout the text as well. Fan volumes open and stand them on edge with the interleaving paper extending beyond the edges of the book. Evaporation of water as it wicks into the interleaving paper will enhance drying. Replace interleaving paper as it becomes soaked and invert the volume each time to insure even drying.
Documents	Air dry flat in small piles (1/2 inch) or individually if possible. Change blotting material beneath the materials as it becomes soaked.

Photographs, Negatives, Motion Picture Film	Several classes of photographs are highly susceptible to water damage and the recovery rate will be very low. Avoid touching the surface of photographic prints and negatives. If an old photographic process cannot be identified, observe the item carefully and contact a conservator for advice. Never freeze old photographs or negatives. Most prints, negatives, and slides may successfully be individually air dried face up. Change blotting material beneath the photographs as it becomes soaked. Contemporary photographic prints and negatives which are still wet and have stuck together may separate after soaking in cold water. However, this type of treatment could cause irreversible damage. Highly valued items, especially prints for which there is no longer a negative, should be referred to a conservator immediately.
Framed Items	Remove the backing material from the frame. If the item is not stuck to the glass, carefully remove it from the frame and air dry. If the object appears to be stuck to the glass, do not attempt to remove it from the frame. Dry intact with the glass side down. Occasionally object damage is irreversible. The treatment of items of high monetary, historic, or sentimental value should only be performed in consultation with a conservator. Decisions about the treatment of materials belonging to an institution should only be made by appropriate personnel. The American Institute for Conservation (202-452-9545) maintains a referral list of conservators who will be able to provide guidance for treating private collections.

Endnote:

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i. Peter Waters, The Library of Congress (July 1993). This publication was produced as a public service. It may be reproduced and distributed freely in part or in its entirety. When duplicating individual articles please copy them exactly as they appear so that proper credit will be given to the originating institution. http://palimpsest.stanford.edu/bytopic/disasters/primer/narafam.html

Appendix H

Security Checklist

1. Clearly mark staff-only areas as closed to the public.

2. Issue ID tags/badges and escort visitors in non-public access areas.

3. Ensure that a staff member is always present or in view of the reading room.

4. In exhibition cases, ensure that all collection materials are secure. Cases should be locked (lock should be hidden from view and not be operable with commonly available tools, e.g. allen key) and frames should be affixed to the wall.

5. Be aware that terminated employees may pose security risks. Ensure that the employee, before leaving, turns in all relevant identification and keys.

6. Limit the amount of material one patron may use at a time. A table cluttered with research materials increases the risk of theft and physical damage to the materials.

7. Establish some form of exit control or inspection for public and staff leaving those areas where collection materials are accessible.

8. Ensure that the inventory is periodically checked to determine any losses or missing items.

9. Ensure that all outside windows, doors, loading dock areas or other entry points are secure.

10. Ensure that locks are in working order.

11. Keep track of all keys especially duplicate copies and master keys.

12. Ensure that the exterior of the institution is well lit at night.

13. Establish procedures that will be followed in the event of theft and vandalism.

14. Ensure that all staff members, outside service employees, and the public are aware of your institution's security system.

Appendix I

Smithsonian Institution Staff Disaster Preparedness Procedures[i]

This appendix provides a brief overview of the types of disasters posing a potential threat to staff. Note: This appendix does not contain emergency procedures for cultural items. These emergency procedures are intended to assist individuals in understanding what to expect and what to do initially. The information in this appendix is provided primarily as guidance in the event a disaster occurs at work. However, these same procedures can be applied to situations at home and when traveling.

Should an emergency occur, evacuation of the facility may be necessary. Evacuation routes for facilities should be displayed throughout staff work areas. All personnel should study these procedures carefully. All staff should have a list of emergency telephone numbers and a list or map of assembly area locations.

Staff Evacuation Procedures	When evacuation alarm sounds or you are directed to evacuate the facility: 1. Remain calm. 2. Shut down all hazardous operations. 3. Follow instructions. 4. Assist disabled persons. 5. Leave the area in an orderly fashion. Close doors, but do not lock. 6. Follow established evacuation routes. 7. Move away from the structure. Go directly to the assembly area (map provided with plan). Report to the Evacuation Coordinator for a "head count." 8. Do not block the street or driveway. 9. Stay at the assembly area until instructed otherwise.
Fire	In case of a fire: 1. Remain calm. 2. Contact the Fire Department. 3. If the fire is small, try to extinguish it with the proper type of extinguisher or other method. Do not jeopardize personal safety. 4. Do not allow the fire to come between you and the exit. 5. Disconnect electrical equipment if it is on fire and it is safe to do so. 6. Notify the supervisor and evacuation coordinator, if possible. 7. Evacuate if you can not extinguish the fire. Assist disabled persons. 8. Do not break windows. 9. Do not open a hot door. (Before opening a door, touch it near the top. If it is hot or if smoke is visible, do not open). 10. Do not use elevators. 11. Do not attempt to save possessions. 12. Go directly to the assembly area. 13. Do not return to the affected area until told to by appropriate authorities. Do not spread rumors.

Severe Storms	(These first procedures apply to thunderstorms, tornados, hurricanes, etc.) In the event of a severe storm *watch* within the surrounding area: 1. Listen to the local radio/TV or NOAA Weather Radio for instructions. 2. Plan ahead before the storm arrives. 3. Tie down loose items located outside or move them indoors. 4. Open windows slightly, time permitting, on the side away from the direction of the storm's approach. 5. Check battery-powered equipment and back-up power sources. 6. Fill vehicles with gas. In the event of a severe storm *warning* within the surrounding area: 1. Disconnect electrical equipment and appliances not required for emergency use. 2. Do not use telephone except for an emergency or absolutely essential business. 3. Store drinking water in clean containers (e.g., jugs, bottles, sinks). 4. Avoid structures with wide span roofs (e.g., gymnasium). 5. Otherwise, take cover
Hurricane Warning	1. Board up windows or protect them with storm shutters or tape. Some should be left slightly open to equalize the pressure. 2. Leave low-lying areas that may be swept by high tides or storm waves. 3. Stay in the building if it is sturdy and on high ground. If not–and especially if local authorities order an evacuation–move to a designated shelter. 4. Remain indoors. Don't be fooled by the calmness of the "eye." Remember, the winds on the other side of the "eye" will come from the opposite direction. Hurricane Evacuation: 1. Follow the instructions of local authorities. 2. If transportation is provided by local authorities, use it. 3. If you must walk or drive to another location: ● Leave early enough so as not to be marooned. ● If driving, ensure there is sufficient gas. ● Use recommended routes rather than trying to find shortcuts, and ● Go to a designated location–don't go anywhere else.
Tornado Warning	1. Go to the basement, if available, or an interior hallway. 2. Upper floors are unsafe. If there is no time to descend, go to a closet, a small room with strong walls, or an inside hallway. 3. Do not remain inside a vehicle. As a last resort, and if no ditch or ravine is nearby, crawl under the vehicle.

	4. If in open country and time permits, locate suitable shelter. If not, lie in the nearest ditch or ravine. Be alert for flash floods.
Winter Storm	If a winter storm warning is issued for the area: 1. If at work– ● Listen to the local radio/TV for weather advisories and official permission to go home early. ● Plan ahead before the storm arrives. ● Move indoors any items located outside which might be damaged by the storm or become hazardous during high winds. ● Check all battery-powered equipment and back-up power sources. ● Fill vehicle gas tanks. ● If you must travel (business or going home), use public transportation if possible. If not and you must drive: • Make sure the vehicle is in good condition, equipped with chains or snow tires, and has a full tank of gas. • Take another person with you, if possible. • Leave an estimated itinerary (destination and estimated time of arrival) with someone. • Have emergency "winter storm supplies" in the vehicle (e.g., sand, shovel, windshield scraper, tow chain or rope, flashlight, flares. It's also good to have a blanket, heavy gloves, overshoes, extra woolen socks, and winter headgear). • Travel by daylight and use major highways, when possible. • Keep the radio on for weather information and advice. • Don't be daring or foolhardy. Rather than risk being stalled, lost, or isolated, stop, turn back or seek help if conditions threaten to test your ability or endurance. • If the vehicle breaks down, or you become lost, or stalled: o Don't panic! Think the situation through, and decide the safest and best thing to do. Then do it slowly and carefully. o If on a well traveled road, indicate you are in trouble (e.g., hazard flashers, raised hood, hanging cloth from radio aerial or window. Then stay in the car and wait for help to arrive. If you run the engine to keep warm, keep snow away from the exhaust pipe and keep a window open enough to provide sufficient ventilation. o Wherever you are, if there is no house or other source of help in sight, do not leave the car to search for assistance. It is very easy to become disoriented and lost during a severe storm.

	2. If at home– ● Listen to the local radio/TV for weather advisories. ● Plan ahead before the storm arrives; prepare for possible isolation for a couple of days. Ensure you have on hand or the proper working condition of: ○ Blankets, some kind of emergency heating equipment and adequate supply of fuel ○ Food and water, emergency cooking equipment. (It's better to have some foods that do not require cooking or other preparation); ○ Battery-powered radio and extra batteries, flashlights/lanterns and extra batteries/fuel; and ○ Simple tools for fire fighting. ● Move indoors any items located outside which might be damaged by the storm. ● Fill vehicle gas tanks. ● Travel only if absolutely necessary and follow precautions shown above.
Utility Failure	In the event of a power outage in your area: 1. Remain calm. 2. Remain where you are and open all available blind/shades/curtains to receive more outside light. 3. If you are in an unlighted area, go cautiously to an area that has emergency lights. 4. If telephones are working, call and report the outage. 5. Wait for further instructions from the authorities. 6. If directed to evacuate, assist disabled persons and go to the Assembly Area. 7. If you are in an elevator, stay calm. Use the intercom or emergency button to alert Security or other persons.
In the event of a water line/sewer failure:	1. Remain calm. 2. Notify utility immediately. Advise them of the severity and location of the problem. Indicate if any objects are in imminent danger. 3. If during work hours, notify your supervisor of the situation. 4. Use extreme caution if any electrical appliances/outlets are near the water. Inform Security of the electrical hazard. 5. If the source of the water is known and you are confident you can stop it safely, (i.e., unclog the drain, turn off water), do so cautiously. 6. Assist with protecting objects 7. If directed to evacuate, assist disabled persons and go to the Assembly Area. Wait for further instructions.
Flood	In case of a flood watch in the area:

	1. Listen to local radio/TV. 2. Prepare to take immediate precautionary actions. 3. If driving, watch for flooding at highway dips, bridges, and low areas due to rain not seen by you, but which may be indicated by thunder and lightning. In case of a flood warning in the area: 1. Listen to local radio/TV. 2. Prepare to evacuate upon direction. (Note: If a flash flood warning is issued, get out of the area immediately.) 3. Assist disabled persons and follow instructions of emergency preparedness personnel. 4. Check any battery-powered equipment & back-up power sources. 5. Store drinking water in clean receptacles (e.g., sinks, jugs). 6. Inventory and move to the upper floors emergency supplies such as food, first aid items, blankets. 7. Secure all loose objects located outside. 8. Assist with protecting objects. 9. Board up windows. 10. Disconnect utilities which are not absolutely essential. 11. Fill vehicle gas tank(s). 12. If driving, know the depth of the water in a dip or low area before crossing. 13. If vehicle stalls, abandon it immediately and seek higher ground. 14. Do not try to cross a stream on foot if water is above your knees. 15. Do not re-enter the affected area until directed by emergency preparedness personnel. 16. Do not spread rumors.
Hazardous Material Accident	In case of a hazardous material accident at the facility: 1. Evacuate the immediate area. 2. Initiate appropriate first aid and/or other personnel protection measures, as required. 3. Notify Authorities as soon as possible. 4. Do not re-enter the affected area until directed by the emergency preparedness personnel. 5. If trained and properly protected, assist with the clean-up operations, as directed. 6. Do not spread rumors. In case of a hazardous materials accident in the local community: 1. Listen to the local radio/TV. 2. Follow instructions of the emergency preparedness personnel. 3. Evacuate when directed. Follow the designated route to the Assembly Area. 4. Do not re-enter the affected area until directed by emergency preparedness personnel. 5. Do not spread rumors.

Civil Disorder and Demonstrations	In case of a demonstration or other form of civil disorder within the area: 1. Notify authorities immediately of any information received, factual or rumored, of a demonstration or other form of civil disorder which is planned or in progress in the vicinity of the facility. 2. Follow the instructions of building Security and the emergency preparedness personnel. 3. Assist with protecting objects. 4. If an explosion occurs, take cover immediately and anticipate there may be others. 5. Notify Authorities of any potential/actual hazards (e.g., fire, bomb threat) incurred during a threatening situation. 6. Stay indoors and away from windows unless directed to evacuate by the emergency preparedness personnel. 7. Evacuate when directed and follow the evacuation procedures included at the beginning of this handbook. 8. If released from work early, follow instructions of the emergency preparedness personnel and the local authorities. 9. Do not remain in the vicinity of the disturbance to sightsee. 10. Do not spread rumors.
Terrorism	Should an act of terrorism occur within the surrounding area: 1. Fellow the instruction of the Security and emergency preparedness personnel. 2. If an explosion occurs, take cover immediately and anticipate there may be other explosions. 3. Notify Authorities of any known hazards (e.g., fire, bomb threat). 4. Stay indoors and away from windows unless directed to evacuate. 5. Evacuate when directed and follow procedures included at the beginning of this booklet and any instructions of the Evacuation Coordinators. 6. If released from work early, follow the instructions of the emergency preparedness personnel. 7. Do not remain in the vicinity to sightsee. 8. Do not spread rumors.
Bomb Threat	If you receive a bomb threat telephone call: 1. Remain calm. 2. Listen carefully. Be polite and show interest. 3. Try to keep the caller talking to learn more information. 4. If possible, write a note to a colleague to call the authorities or, as soon as the caller hangs up, immediately notify them yourself. 5. Complete the attached Bomb Threat Checklist immediately. Write down as much detail as you can remember.

	6. Do not discuss the threat with other staff. 7. Follow the instructions of the building Security. 8. Evacuate when directed and follow the procedures included at the beginning of this handbook. 9. Do not spread rumors.
Explosion	In case of an explosion in your area: 1. Remain calm. 2. Take cover under a table or desk. 3. Be prepared for possible further explosions. 4. Stay away from windows, mirrors, overhead fixtures, filing cabinets, bookcases, etc. 5. Follow the instructions of the security guards and emergency preparedness personnel. 6. Evacuate calmly, when directed, to the Assembly Area. Assist disabled persons. 7. Do not move seriously injured persons, unless they are in immediate danger (fire, building collapse, etc.) 8. Open doors carefully. Watch for falling objects. 9. Do not use elevators. 10. Avoid using the telephone, except in a life threatening situation. 11. Do not use matches or lighters. 12. Do not re-enter the affected area until directed by emergency preparedness personnel. 13. Do not spread rumors.
Major Transportation Accident	Major transportation accidents are those involving any of the various modes of transportation (e.g., highways, waterways, railways, and airways). Such accidents could occur at any time and any place, and often involve multiple injuries and/or deaths. Many facilities are not prepared (and are not expected to be prepared) to cope with the type of problems created by a major transportation accident. Should such a disaster occur, initiate life-saving and property protection actions until assistance can be provided from the community. For example, security personnel are trained to extinguish small fires and to ensure the safe evacuation of the public. The medical staff and/or persons trained in first aid can attend injured persons. Also, during regular work hours, the staff can implement appropriate measures to protect the collections and other physical assets. Should a major transportation accident occur, many decisions regarding the appropriate emergency actions to take will have to be made "on-the-spot" based on the situation. For instance, are hazardous materials involved and/or are there casualties? Is there a need to evacuate? Is there damage to the facility itself and/or are the utilities functioning? For the appropriate protective actions to take for a specific hazard (i.e., fire, hazardous materials, explosions, utility failure, etc.) refer to the respective section in this booklet.

Earthquake	If an earthquake should occur: During The Shaking -- 1. If indoors ● Stay there. ● Take cover under sturdy furniture (desks, work tables, etc.) or in a supported doorway. ● Stay near the center of the building. ● Do not run for the exit as the stairs may be broken or jammed with people. ● Do not use elevators. ● Stay away from glass windows, doors, display cabinets, bookcases, etc. ● Do not use candles, matches, or other open flame as there may be gas leaks. ● Extinguish all fires with the proper type of extinguisher or other method. 2. If outdoors ● Move to an open area away from buildings, utility wires, trees, etc. ● If forced to stand near a building, watch for falling objects. 3. If driving a vehicle ● Stop as quickly as safety permits, avoiding overpasses and power lines. ● Remain in the car until the shaking stops. ● If able to drive on after the shaking stops, watch for hazards which may have been created by the earthquake (e.g., fallen/falling objects, downed utility wires, under-mined roadways, damaged bridges/overpasses).

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http://www.archives.gov/preservation/emergency-prep/disaster-prep-procedures.html

Appendix J

Supplies on Hand for Disaster Preparedness

Absorbent paper
Bungee cords (6 ft) - 30 cords
Clipboards
Cotton gloves
Extension cords
First aid kit
Flashlights: handheld
*d-cell batteries
Flashlights: lanterns and batteries
Lysol disinfectant
Plastic garbage bags
Protective aprons
Ringed notebooks
Rubber boots
Rubber gloves
Sponges
Tarps
Temperature/humidity monitor
Tools: crowbar, hammer, screwdrivers, tape measure, pliers
Vacuums
Waterproof black markers

Appendix K

NMAI Archival Survey Form

Name of Archives & Archivist:_____

Date of survey:_____

Surveyor:_____

1. ☐ **Mission statement (obtain copy if possible)**
2. ☐ **Collection policy (obtain copy if possible)**
3. ☐ **Size of entire collection (do they count by linear or cubic feet?)**_____
4. ☐ **Size of Native American collection* (linear or cubic feet or % of whole collection)**
   _____
5. ☐ **Amount of Native linguistical material (if any)**_____
   - ☐ **Do you have any Native linguistical audio material—amount?**_____
6. ☐ **Types of media in archives (% of whole if possible)**
   - ☐ Paper_____%
   - ☐ Photographic (negatives, prints, slides, transparencies, etc.)_____%
   - ☐ Audio_____%
   - ☐ Video_____%
   - ☐ Digital_____%
   - ☐ Microfilm – microfiche_____%
   - ☐ Other_____%
7. ☐ **Preservation methods**_____
_____
_____
_____
_____
_____
_____

* Please enter NA (Not Applicable) for Question 4 when surveying Native archives.

8 ☐ Types of storage (cold storage, etc?)_____

_____
_____
_____
_____
_____
_____
_____

9. ☐ Reference (research room capabilities, restriction policy) _____

_____
_____
_____
_____
_____
_____
_____
_____

---

10. ☐ Does your archive have a research guide? _____

_____
_____
_____
_____
_____

11. ☐ Size of staff (full time; part time)_____

_____
_____
_____
_____

12. ☐ Outreach (Internet, K-12, or other programs, etc.) _____

_____
_____
_____
_____
_____
_____
_____

13. ☐ Problems encountered in their particular environment (flood area, humidity, placement of archives within their building a problem?, etc.) and how have they overcome them?_____

_____
_____

14. **Comments:**

15. **Who (else) in your state has Native American language materials?**

Questions on policies:

1. Do you have a policy on copyright or the use of their materials; could we have a copy of it? _____
_____
_____
_____
_____
_____
_____

2. Who do you allow to examine your catalog/list of materials? Are there any conditions on this use?_____
_____
_____
_____
_____
_____

3. Who do you allow to examine your materials? Are their any conditions on this use?
_____
_____
_____
_____
_____
_____
_____

4. Who do you allow to copy materials? Are their any conditions on this use?_____
_____
_____
_____
_____
_____
_____

5. Do you sell copies of your materials? Are there some you do not sell?_____
_____
_____
_____
_____
_____
_____
_____

Questions on the materials:

1. What media are being produced?

- Print text_____
- Video or other media text_____
- Print art_____
- Art in other media_____
- Music, preserved thru tape, CD, Videotape_____
- Digital_____

2. Are the materials being produced under a contract? By an employee?_____
_____
_____
_____

3. Are any materials being copyrighted, if so what procedure is followed?_____
_____
_____
_____

4. Who or what is credited as the author of the materials (as seen on the material itself)?
_____
_____
_____
_____
_____