

Human Remains and the Conservator's Role

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Little has been written about the roles of conservators in regard to the preservation of human remains. This article examines the new challenges that face conservators as we become more involved with human remains under the new laws and approaches that protect indigenous community rights. The authors explore three areas critical to this debate, namely conservation expertise, training and outreach. Three scenarios for the conservator's role are presented. The authors suggest conservators should aim for the third role, that of 'contributing colleague', especially in the multidisciplinary and highly sensitive area involving the study of human remains. Also presented is a case study involving teamwork with the Kennewick Man remains. Though the discussion is limited to applications of preservation issues to human remains, the concepts have wider applications in the conservation field in general.

INTRODUCTION

The preservation of human remains is a politically and socially sensitive issue. In the United States of America, treatment of human remains has become especially significant since the passage of important legislation known as the Native American Graves Protection and Repatriation Act (NAGPRA) on 16 November 1990 (<http://www.cast.uark.edu/other/nps/nagpra/nagpra.dat/lgm003.html>). In Australia, similar legislation protecting indigenous cultures was enacted in 1984 and is known as the Aboriginal and Torres Strait Islander Heritage Protection Act (ATSIHPA) (http://www.austlii.edu.au/au/legis/cth/consol_act/aatsihpa1984549/). This legislation provides even greater protection and self-determination for indigenous Australians than US Native Americans currently have, particularly in terms of human remains. The fundamental difference involves the concept of private property. Australian law places greater importance on the concept of ancestral claims than it does on property rights, since indigenous

human remains found on private property must be given to indigenous authorities for proper treatment. In the USA, a few states, such as Arizona and Alaska, have more rigorous laws than the federal mandate that covers finds on state and/or private property (<http://www.statemuseum.arizona.edu/arch/arclaws.shtml> for Arizona law information and <http://www.ibsgwatch.imagedjinn.com/learn/alaskalaw.htm> for description of Alaska law), but this is uncommon. In both the USA and Australia the discovery of human remains on public lands means guidelines must be followed for informing, consulting, negotiating and repatriating, with relevant indigenous representatives to determine the ultimate disposition of human remains and their interim treatment.

Other countries and fourth-world peoples¹ have also understood the connection between politics and human remains. In Latin America, indigenous struggles are just beginning. For instance, Mapuche Indians are currently

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¹Fourth-world peoples are the native, aboriginal and indigenous cultures of all seven continents.

battling for indigenous rights in Argentina and Chile and have demanded the return of ancestral remains from museums [1]. Peruvian indigenous cultural organizations such as Yachay Wasi are demanding that Inka mummies on display be removed because they are symbols of genocide and should not be used to attract visitors to a museum exhibition [2]. This is likely to be the beginning of a growing trend towards greater respect for human remains in general, and giving attention to the increasing importance of the symbolic link human remains can have in political-religious freedom struggles, especially by minority indigenous populations in their demands for equality. In another example, even though the sale of most Egyptian antiquities has been illegal since 1983, the Egyptian government has recently requested greater protection of mummified human remains (now considered important cultural patrimony) and they are not allowed to travel internationally. However, this attitude is not necessarily shared: a typical position for museum directors is summed up by the comment that, 'a sure fire solution to sagging patronage is [to] hold a blockbuster exhibit that includes either Egyptian mummies or dinosaurs' [3].

With the growing importance of or focus on human remains, interdisciplinary teams are often created for their study before or during repatriation processes or for other purposes. In the past, specialist teams have rarely included conservators [4]. A few basic conservation texts cover preservation of materials in archaeology [5–7]. These excellent references concentrate on excavation concerns of bone in general and specifically non-human bone. Little attention is given to human bone in the conservation field, and there is even less to be found about future laboratory or curatorial concerns. There are three references that deal with bone treatments involving adhesives and/or consolidants [8–10]; these are intended specifically for a conservation audience and presuppose the use of interventive solutions to preservation problems. The usefulness of such interventive treatments for indigenous remains, especially in the United States or Australia, would be minimal under current laws, and their application would likely constitute a breach of respect toward living descendants. Pye, in her thoughtful article on 'Caring for human remains — a developing concern?', points out that non-archaeological communities in the United Kingdom, as in other areas of the world, are increasingly interested in what is being done to human remains in museums and 'are more inclined to question the appropriateness of excavation, scientific investigation, and retention for further study' [11]. Pye concludes that the resultant

public openness will force a change in conservation practices, requiring conservators to have communication and negotiation skills as well as greater cross-cultural sensitivity.

Few physical anthropology training programs include even a basic course in preservation issues. This lack of emphasis is reflected in the scant mention of preservation topics in standard physical anthropology texts, and the often uncared for or overcrowded conditions of osteological collections in general [12–17]. When preservation techniques are mentioned in physical anthropology texts, they are chiefly equated with a preservative coating of glue applied to the surface [17]. Many physical anthropologists consult paleontologists for preservation guidance, especially when excavations of older human remains are concerned, but conservators are rarely consulted either by physical anthropologists or by paleontologists.

Internationally, NAGPRA and ATSIHPA have forced important changes in museums as institutions and professionals in several areas. These legislative actions have, among many other things, begun to modify cultural insensitivities, and simultaneously have brought together culturally and academically diverse groups, with positive outcomes [18–20]. Conservators need to prepare themselves to cooperate with the growing and changing preservation awareness among indigenous communities, physical anthropologists, archaeologists and others who are involved with human remains and associated funerary objects. It is the objective of this article to tackle the conservator's role in dealing with human remains from both a philosophical and a pragmatic point of view.

The lack of general participation by conservators in the areas of repatriation, study and/or preservation of human remains is of vital concern and raises the following questions: does this lack of participation reflect that the material is outside the conservator's expertise? are we perhaps not equipped to work in multidisciplinary teams? or is it that our colleagues do not understand how we can actively contribute to a multidisciplinary team? The answer to all of these questions seems to be at least a partial 'yes'.

A LACK OF EXPERTISE?

There has long been debate within the field of conservation between those with an arts background and those who come from the field of anthropology. One of the main characteristic differences centers on the importance, or degree of emphasis, given to aesthetics, or to

the physical integrity of an artifact, versus its context(s), or the peripheral information contained by or surrounding an artifact. When human remains are the focus of discussion, the debate becomes further attenuated, since the aesthetics of human remains can only become paramount in the rarest of cases. Though there is an incredible public fascination with human remains [21], as can be gleaned from the increasing number of television documentaries, exhibits and books produced on the subject — there is even a Mummy Road Show on the National Geographic Channel — we have an ambivalent relationship with the subject of death and human remains. Often this fascination manifests itself as morbid curiosity: we, the public, want to see and feel the drama, but we do not want to get too close to the physical evidence. Only in the exceptional cases of a few spectacularly well-preserved mummified individuals do the aesthetics of human remains for display purposes become a major issue (Greenland Mummies, Ice Man in Austria/Italy, Inka Maiden in Peru, Lindow Man in the British Museum, Danish Bog Mummies, and El Plomo in Chile). Apart from these, and those whole or partial remains that are used for exhibition in medical museums, there is a current reluctance to display human remains. Yet in universities, museums and law enforcement agencies all over the world there are hundreds of thousands of human remains housed from diverse cultures. Aesthetics or the visual qualities of these bones or dry tissue samples are not a primary concern, and the conservator's philosophical approach must of necessity reflect the sacred, ritualistic and contextual nature of human remains. Less emphasis is placed on the material object than on its preservation or the lessons it can tell about quality of life, occupation, habits, health, diseases and death of an individual or an entire community. Few would probably argue against the need for an anthropological approach to the conservator's involvement in the majority of human remains issues. At the very least, there is a need to collect pertinent data for the limited purpose of determining the geographical origin, cultural affiliation and basic facts surrounding the acquisition and accession of human remains and associated funerary objects.

Respect for indigenous rights often implies reburial of human remains so that preservation may seem a conflicting aim. However, many Native American tribes do want to know more about their ancestors when they are in control or can be assured that respectful treatment will be afforded, even if reburial is the ultimate goal in many cases [22]. As a result, from the archaeologist's and physical anthropologist's perspective, there is now a greater need for being more efficient about data

collection during excavation, especially of indigenous human remains. In the past, measurements were taken at leisure in the laboratory; now these analyses need to be made *in situ*, in the field or directly upon entering the laboratory, in order to accommodate short turnaround times for return to descendants or cultural affiliates. There are many areas where a conservator's expertise can be useful under such conditions. For instance, in planning for an excavation where human remains might be found, conservators could give suggestions for supplies and tools to be on hand. In the event of a find, such as fragile bone remains, a conservator's advice again would seem natural. In the areas of transport, surface cleaning, storage and study, conservators have much to offer. In fact, our conservation codes of ethics are quite elaborate as compared to those of many other fields, particularly those of the profession of physical anthropology. We are expected as conservators to research thoroughly, to know as much history and context as possible about the objects we treat, and to take a holistic perspective. In spite of our admirable codes, are we culturally sensitive enough to know what can and cannot be done? Can we give advice that will not interfere with the sacred nature of the remains and still retain the integrity of the bone for analysis and measurement by scientists? There is a delicate balance to be maintained and it is not only the bone itself but also what is found with it and around it, and the documentation created subsequent to its discovery, that needs to be preserved. Sensitivity to other cultures and to the current socio-political atmosphere is required in addition to knowledge of the basic material nature of human remains.

Are we equipped as conservators to advise our colleagues on these issues? Though only a few educational programs (for example, Institute of Archaeology, University College London) include curricula for conservators in dealing specifically with human remains in the arenas of field, laboratory, repatriation and museum; none prepare conservators to work in multidisciplinary teams with anthropologists and professionals in related scientific disciplines. In addition to learning to work as a team, at a minimum it is vital for those who aspire to do such work to have a background that includes formal study of anthropology in general, to understand cultural differences and the very different contextual approach of anthropology compared to traditional art history. Basic archaeological, physical anthropological and osteological knowledge is an obvious requirement, too.

CONSERVATORS' ROLES AND TEAMWORK

In order to know how we should orient ourselves for teamwork involving human remains, we need to analyse the conservator's roles in the past. Generally, the role of conservators in the preservation of human remains has been minimal but, from personal observations, informal discussions and literature searches, there appear to be three basic roles from which conservators can choose. We have grouped these as adversarial, technical and contributing colleagues.

In the USA, prior to NAGPRA, if conservators took an interest in human remains, it was often a very traditional stance. If involved at all, conservators often took on an adversarial role that harks back to the preservation versus access debate. In this role the conservator regards himself or herself as lone defender of the artifact. The role tends to protect the artifact but also greatly restricts access. Relationships to colleagues in other disciplines become adversarial since it is perceived by the conservator that the preservation needs of the artifact take precedence over the needs of colleagues to conduct rituals, study, analyse, sample or document, or the need for ritual observance. Access is limited and handling restricted to the conservator, or is only allowed under the watchful eye of the conservator or artifact handler. In this role the conservator may become, in the eyes of colleagues, one more barrier to getting research done efficiently. Once perceived as an obstacle, a conservator may not even be consulted about further dealings with human remains.

The technical colleague has a more tolerant approach. The conservator, in the technical role, is often called to help with a specific problem. Colleagues tolerate and appreciate the conservator's presence as long as it is limited and does not interfere with access. The role is often temporary and specific to a particular problem. The conservator can be seen as a technician fulfilling a mission generated by others, or demanded by the state of the object itself. Though the technical colleague may be a conservator or conservation scientist working in isolation, there is also the possibility that the conservator may be part of a team.

As a technical colleague, there may be times when the conservator may volunteer to do the work of others because, as 'jacks-of-all-trades', we might be seen as better suited for a particular task. Possible scenarios might include the removal of clothing or wrappings; consolidation for lifting at an excavation; sampling for analysis; holding together two or more bones for a measurement; or removal of mold. Conservators take on such tasks to save the integrity or context of associated

artifacts because 'a conservator can do it better'. Conservators often work in isolation. But should they? It might be preferable to support colleagues, for example, in raising standards of handling. Conversely, a conservator lacking specialized knowledge or the support of a team may take on too much responsibility and delay the project or, at worst, be responsible for loss of contextual information.

The third approach involves the conservator as a contributing colleague, focusing on preservation while enabling access. This requires a delicate balance, where all parties involved are treated with respect. In this scenario, the conservator is able to contribute many effective skills to scientists called in to study or to analyse human remains, to descendants who must protect or appease the spirits of the dead to protect the living, and to the museums or institutions whose mission it is to preserve artifacts and their contexts. The conservator acts as an advisor or consultant and helps to develop compromises or modifications that meet the diverse goals of the multidisciplinary teams that are so often involved thanks to NAGPRA. The aim is for conservators to lend their skills by advising and teaching others how to achieve their goals in ways that will not change, or interfere with, the human remains and their contexts. In this role the conservator is often less hands-on but the effect of this type of interaction with colleagues is long-term, since colleagues go away with new skills as well as an appreciation of the goals and the practical applications of the field of conservation. In addition, when working in the role of collaborative colleague, often a higher standard of preservation can be achieved, and therefore it is more professionally gratifying.

CASE STUDY: THE KENNEWICK MAN, OR ANCIENT ONE

The following is a discussion of how the 'contributing colleague' model was found to be exceptionally useful in the case involving a highly contested set of human remains that has been billed in the media as a test case for NAGPRA in the United States. The individual in question will be referred to here as the Kennewick Man since this designation is more specific to this particular individual, though Native American groups who claim him as their ancestor prefer to call him 'Ancient One'.

Background

Kennewick Man is a hotly contested set of skeletal remains from one individual who dates to approximately

7000 BC (radiocarbon dates are 8340–9200 Cal BP from University of California Riverside, and 9510–9320 Cal BP from Beta Analytic, Beta-133993). He was found in July 1996, on the shore of the Columbia River in the State of Washington, by teenagers. The site is on federally owned land, administered by the US Army Corps of Engineers (CORPS). Shortly after the discovery of the skeleton, the coroner turned over the unidentified skeletal remains to a local archaeologist, Dr James Chatters, who was under contract with the coroner's office for identification and analysis. Three collections of remains were made at the site on at least three different days. (Chatters obtained a backdated Archaeological Resources Protection Act (ARPA) permit from the CORPS to excavate after his initial collection was made.) Dr Chatters became intrigued and confused by what he felt were unusual morphological features, and the lithic point embedded in the iliac/ischium (hip). A number of steps were taken that would not be automatically sanctioned under NAGPRA. For instance, samples for radiocarbon dating and DNA were sent for analysis, reconstructions of the fragmented head and pelvis were made, and molds were taken of both. The resulting data were immediately announced in the newspapers, along with Dr Chatters's views on the individual's Caucasoid features and his possible doubts about Native American ancestry based on the physical features of the skull or cranium.

Five American Indian tribes from the region (Bands of the Yakama Indian Nation of the Yakama Reservation, Washington; the Confederated Tribes of the Colville Reservation, Washington; the Confederated Tribes of the Umatilla Reservation, Oregon; the Nez Perce Tribe of Idaho; and the Wanapum Band, Washington, a non-Federally recognized Indian group) were deeply concerned about the handling of this potential ancestor, and were alarmed by media challenges to their sovereignty. The CORPS stepped in under the American Resources Protection Act of 1979 (ARPA) and demanded the remains from the local coroner, Floyd Johnson, and Dr Chatters, when they found out that the latter intended to transport the remains out of state to the Smithsonian Institution in Washington DC. The CORPS also received the Native Americans' formal request for repatriation of the remains. Subsequently, the local CORPS officials, apparently not fully familiar with the documentation–consultation process required under NAGPRA, made hasty political decisions and planned to repatriate the remains immediately. Simultaneously, a group of physical anthropologists (including Dr Chatters) and archaeologists, who were

discontented with the time depth of ancestry afforded by the NAGPRA², joined together to prevent repatriation, to continue study of this individual and eventually to modify the NAGPRA legislation by filing suit in federal court. Publication of the story made national headlines and often included Chatters's own reconstruction, which was said to resemble *Star Trek* hero, Captain Jean Luc Picard.

The case went to the federal court in Oregon and the battle continues between the group of eight anthropology plaintiffs³ and the government together with the five Native American tribes. In September 2002, Judge John Jelderks gave the plaintiffs permission to study the remains and denied a Native American claim for repatriation. Tribal claimants filed a formal appeal in the Ninth Circuit Court in San Francisco, and the US Department of Justice also chose to appeal the non-Native American status decision. The higher court upheld the lower court's decision: both the repatriation claim and the Native American status under NAGPRA were again denied in this case. Tribal claimants decided not to appeal this decision to a yet higher court. At this time, negotiations are taking place for an elaborate study of Kennewick Man by the plaintiffs and their colleagues.

During the trial, the government was required to determine cultural affiliation or the relationship of shared group identity that can be reasonably traced historically or prehistorically between a present-day Indian tribe and an identifiable earlier group (NAGPRA 25 USC 3001(2)). In fall 1998, the first of several formal multi-disciplinary teams began to carry out scientific investigations under the guidance of Dr Michael Trimble, archaeologist and head of the CORPS Mandatory Center of Expertise for Curation and Management of Archaeological Collections, located in the St Louis district. The subsequent teams had varying numbers of participants depending on the task at hand, but the

²Dr Douglas Owsley, one of the eight plaintiffs, as discussant in the *Human Remains Conference* that took place in 2000 at Colonial Williamsburg, presented his views that NAGPRA should only pertain to claims to ancestors since the arrival of Europeans to the continent, or roughly the sixteenth century. His views are clearly stated in a chapter by Douglas W. Owsley and Richard L. Jantz called 'Kennewick Man a kin? Too distant' in E. Barkan and R. Bush (eds), *Claiming the Stones Naming the Bones: Cultural Property and the Negotiation of National and Ethnic Identity*, Getty Research Institute, Los Angeles (2002) 141–161.

³Plaintiffs include Robson Bonnichsen, C. Loring Brace, George W. Gill, C. Vance Haynes, Jr, Richard L. Jantz, Douglas W. Owsley, Dennis J. Stanford and D. Gentry Steele.

largest group was brought together in April 2000 to assess and carry out DNA sampling of Kennewick Man. It included three representatives from the Department of the Interior (archaeologist, public relations specialist and lawyer), two more lawyers from the Department of Justice, three anthropologists from the CORPS, four archaeologists/curators from the Burke Museum, three physical anthropologists from three major universities, two DNA experts from two different University of California campuses, and two conservators⁴. There were also observers that represented the tribes, the plaintiffs and the Asatru (a religious group of Norse descent also formally claiming descent from Kennewick Man). In addition, there were teams for various other tasks that were court-ordered. Though the team members varied, there was a consistent nucleus of CORPS curation staff members, Burke Museum curation staff, and the two conservators (the authors).

From the start we realized, in a court case of this scale, how vital it was to have a pair of conservators working together as well as with the various experts, so that ideas could be reflected upon constructively. Not everyone involved had worked with a conservator before, and those that had often commented on negative experiences, citing instances when, in their view, conservators had tended to put up 'roadblocks'. We therefore had to define our role carefully with each individual. Initially, the invited experts would let the group know what their intentions were and how they planned to carry out the analyses in practice. The conservators would go over these plans and ask for specific logistics or, in the case of sampling, request a test-run on animal bone, for instance. If the proposed system could be improved, a new system would be proposed in its place. Examples included the replacement of metal dental tools with less damaging wooden probes for testing soil or bone hardness, and the replacement of an electrical saw with a hand-held jeweler's saw

for sampling. Frequently, the challenge was to compromise — to make the methods safe for the remains and efficient for the experts, and still get the job done.

Formal inventory, condition documentation, and transfer of the remains

A more challenging example occurred early in November 1998 when two of the plaintiffs and the government formally inventoried the remains for transfer to the Burke Museum. Besides the inventory, each fragment was to be documented with a condition report and packed for transport. A tight schedule had been set up due to the need for press conferences and police escorts for the five-hour drive from Richland to Seattle, Washington.

It was obvious that traditional-style condition reports that the authors had been asked to prepare for each fragment could not possibly be undertaken in the 12 hours remaining before transport and that they would not be an efficient or quantifiable means to track changes in condition. On site, it was clear we had to develop a more practical and streamlined method, or the conservators would become a hindrance to the team. Our task then became to inspect and record the individual bones for adhering soils, and note if these soils were stable or likely to fall with simple movement or handling; to record obvious signs of weakness in the bone itself, such as presence of lifting, delaminating, cracking, and areas of exposed trabecular (spongy) bone that is inherently weak; and to rehouse the fragments in individual sealable plastic storage bags or to create individual compartments by modifying the bags.

The bagged individual fragments, depending on anatomical position, size and condition, were placed within newly purchased Rubbermaid containers (polyethylene plastic food-grade containers with sealable lids), with expanded polyethylene foam sheet between the layers of fragments. These containers were then placed inside plastic Rubbermaid Action Packer™ containers (heavy-duty cargo boxes with lids, often used for carrying heavy gear or tools), with padding throughout [23]. After a private Native American religious ceremony in the parking lot and a public Asatru sunrise ceremony, a caravan of officials, Native American representatives, CORPS staff, security and press left for the five-hour drive from Richland to Seattle, Washington. The assessment method proved to be highly successful in many ways, and we were able to document and make snug-fitting sealable bags for most of the fragments using a domestic plastic-bag sealing apparatus

⁴The taphonomy and DNA research assistance project took place at the Burke Museum, 24–27 April 2000. Dr Francis P. McManamon, Jason Roberts and Stephanie Hanna represented the Department of Interior. Allison Rumsey and Tim Simmons represented the Department of Justice. Dr Michael Trimble, Rhonda Lueck and Chris Pulliam represented the US Army Corps of Engineers. Laura Phillips, Steve Denton, Dr Julie Stein, Dr James Nason and Roxana Augusztiny represented the Burke Museum. The Department of Interior's expert DNA assessment team included Dr David G. Smith, Dr R.E. Taylor, Dr Phillip Walker, Dr Clark Larsen and Dr Joseph Powell. The conservators on this team consisted of Dr Nancy Odegaard and Dr Vicki Cassman.

(an older Seal-A-Meal type model that does not include a vacuum, originally designed for enclosing food in polyethylene bags with a melted seal). Upon arrival at the Burke Museum and official reception, a condition inventory took place. Each bag was inspected for dislodged soils or bone fragments through the sealed storage bag, without disturbing the microclimate within, and the Polaroid™ photographs and written documentation were also consulted. The damage found was mostly in the form of small amounts of soils that were loose in the bags. It was noted that most of the bags with dislodged soil were not the custom-fit ones but larger bags that allowed movement of the fragment inside. This kind of change in condition was regarded as acceptable and even inevitable considering the intense physical manipulations that the fragments had received by the physical anthropologists in the hours preceding arrival at the Burke Museum. The one item that suffered greater damage than dislodged soil was a molar. This molar was bagged, like all other bones, with an identification number on acid-free card. Since the tooth was much smaller than the piece of card, the bag had been fitted to the dimensions of the card rather than the tooth; this allowed too much movement of the molar within the bag, and a pinhead-sized piece of plaque was dislodged from the base of the tooth. Despite the unfortunate loss of dental plaque, minimal damage occurred overall, and the move was judged to be a success.

The conservator's role here could easily have become an adversarial one. Insisting on traditional condition reports, as prescribed, and a traditional stabilization regime could have stopped the whole process. Instead, we were able to document unstable fragments efficiently; provide effective packing for transport; and not disrupt the tightly scheduled team effort. The condition documentation scheme used for the Kennewick Man is still in use today, and enables us to judge overall condition by comparative evaluations of the observed accumulations of detached soil or bone debris collecting in the storage container. Though our criteria have been modified and have been transformed into a database, they remain extremely practical.

Reconstructions were another area where there were intense interactions. For small fragments of long bones or ribs that split off during the inspections and needed to be kept together, for very fragile long bones, or for fitting long bones together for measuring, ParafilmM® (a stretchy plastic film used in chemistry laboratories to cover beakers to reduce evaporation or avoid contamination) was used. This was used to stabilize and unite several fragments. Though gluing had been suggested by

several team members, the authors felt a less invasive and entirely reversible technique using ParafilmM would be more respectful of the integrity of the remains, and to some of the Native American observers who objected to the introduction of invasive materials or adhesives.

ParafilmM wrap was not suitable for the reconstruction of complex facial or pelvic fragments. A wide variety of methods has been used by physical anthropologists, ranging from the Elmer's Glue-All™ (a brand of common household 'white glue' that Dr Chatters had originally used for a facial reconstruction of the Kennewick Man) to cellulose nitrate, modeling clay and beeswax. Instead, we proposed microcrystalline wax sticks (jeweler's wax) for temporary reconstruction of the skull. Dr Joseph Powell, physical anthropologist, successfully reconstructed the skull, using jewelers' wax sticks to support fragments in their correct positions. After measurements, transport, X-rays and CAT scans, the wax was easily removed from the fragments and cranium. Though initially skeptical, Dr Powell noted the advantages of the method. Unlike working with an adhesive, wax allows for minor 'play' of the pieces and for adjustments to be made as further bone fragments are added. This was essential in this case, due to the poorly placed temporal fragment resulting from Dr Chatters's original glued reconstruction. While reconstructions of this type may be considered an appropriate activity for conservators, it was vital that the expert, the physical anthropologist, carry out the reconstruction himself, because it is the physical anthropologist who must stand by his measurements, possibly in court, and he must be completely confident about the reconstruction and the fit of the bones.

As conservators working in the role of contributing colleagues, the authors were able to achieve a higher standard of preservation because everyone was collaborating. We were there to contribute to the processes taking place by protecting the remains, respecting the cultures and representing institutions involved. We were able to make the process as efficient as possible and to reduce the risks to the remains. We were careful to advise the experts and not to usurp their tasks or responsibilities, and in this way we avoided exposing ourselves to criticism — or even to legal liability, since this was a court case. Several times we were asked by other experts to take on a technical role that we felt was inappropriate. For instance, in cutting C-14 samples, we insisted on an expert taking this role and responsibility. In a court testimony we might have had to answer questions about how many C-14 samples we had taken from human bone in the past year (none), and this could

have jeopardized the case. Instead, a forensic anthropologist who regularly takes such samples performed this task, with the conservator advising on how to support the bone and reduce vibration or movement.

OUTREACH

Finally, one must ask whether it is because, as conservators, we are not experienced in dealing with human remains, or because we have so little experience in working as contributing colleagues, that we are only infrequently asked to participate in multidisciplinary teams? Are there other contributing factors? Perhaps our colleagues do not know that we exist or, if they know we exist, perhaps they do not understand what we can do. Most of the physical anthropologists and archaeologists seemed surprised, at first, by our presence, but in the end they understood our function and were grateful for the support.

To investigate this potential problem of lack of interaction on a regular basis, the authors have undertaken a survey of conservators in the USA. Of the 1089 USA members on the American Association of Physical Anthropology membership list from the year 2000, only 70 individuals (6.4%) have a conservator working within the same parent institution (Table 1 shows distribution by state).

Once we had identified where conservators and physical anthropologists had the potential to work

together, we surveyed the conservators in these institutions. Five questions were asked of 35 conservators working in the 26 institutions. Responses were returned by 23 conservators (66%). The 23 conservators represent 81% of the institutions identified (Table 2).

The survey showed that of the 23 responding conservators with physical anthropologists working in the same institution, 74% (17 out of 23) had given advice, though not always directly to or instigated by the physical anthropologists. Five conservators commented that their primary interaction is not with physical anthropologists directly but with collections managers dealing with human remains. One conservator said advice is conservator-instigated. Storage and handling advice is most frequently given and apparently sought. Only 57% (13 out of 23) have a professional relationship with a physical anthropologist and of these only 22% (5 out of 23) had a satisfactory collaboration with the physical anthropologist(s).

This relatively low number (5) of mutually constructive conservator/physical anthropologist interactions mirrors the isolated and often insular nature of conservation. The limited interaction is evident, too, in the lack of information in both the conservation and the physical anthropology literature, mentioned previously. As professionals, conservators need to make their work known by presenting it to and together with other colleagues. For instance, conservators could speak at anthropology conferences, write for physical anthropology

Table 1

State	No. of physical anthropologists with conservators in same institution*
Arkansas	1
Arizona	11
California	19
Colorado	1
District of Columbia	11
Delaware	1
Florida	1
Georgia	8
Illinois	5
Massachusetts	7
Michigan	18
New Mexico	1
Nevada	4
New York	25
Pennsylvania	11
Tennessee	1

*These tallies often represent several physical anthropologists working in the same institution.

Table 2 Conservator survey and results

Question	Responses		
	Yes	No	Blank
1. Have you been asked to advise about or treat human remains?	17	5	1
2. The 17 affirmative responses were then asked to categorize the types of information shared. Though multiple categories were often checked, there were only three conservators with experience in all four information categories.			
Information categories	No. of positive responses		
Preventive care, storage	15		
Handling	12		
Examination, sampling, testing	8		
Stabilization, treatment	7		
3. Do you have a professional relationship with the physical anthropologist in your institution?	13	9	1
4. If yes, has this collaboration been satisfactory?	5	2	6
5. Have you worked with physical anthropologists in other contexts beyond your present institution?	11	12	

audiences, work with students in related specialties, and actively contribute to indigenous cultural heritage programs and the forensic sciences. To judge from presentations given at the *Human Remains* conference in Colonial Williamsburg in 1999 [24], the University of Bradford (UK) has taken a lead in this, and active sharing is leading to greater cooperation and better preservation standards in general [25].

CONCLUSIONS

In the case study of the Kennewick Man remains, the authors have tried to illustrate in practical terms the advantages of working as a contributing colleague, and how the outcome of such a dynamic is positive for the profession as a whole. Clearly, the contributing colleague is the most rewarding choice, though this involves challenging ourselves as conservators to act in new and more didactic roles. During the inventory, the conservators needed to be very task-focused, relinquishing traditional or established ways of working. We had to abandon the traditional, detailed condition reporting in favor of a more efficient and task-specific format that outlined what needed to be or had been done to the object to affect its condition. The conservator's role was most clearly seen as contributing colleague during the

analyses; as a result, the other experts acquired new knowledge, tools and techniques. From the comments we heard, most participants felt that the interdisciplinary teamwork had been a positive experience.

The challenge of working with human remains does not normally involve aesthetic concerns and is rich in ethical and anthropological questions. Conservators will be called in more often to take part in multidisciplinary teams that study, analyse, preserve and/or repatriate human remains. They need to be ready to do this as partners or colleagues rather than as adversaries, isolated experts or technicians. These conclusions parallel recent theoretical discussions in the field by Muñoz Viñas [26], Avrami *et al.* [27], Lowenthal [28], Pye [11] and Clavir [29]. Muñoz Viñas concludes that conservation decisions should not be imposed by an expert but agreed upon by affected subjects, or by everyone for whom the object has meaning. Avrami *et al.* suggest that conservation training must now teach conservators to assess complex meanings and values, and whom to involve in both assessment and decisions [27, p. 9]. Conservation work, as Muñoz Viñas states, should be a negotiated 'social contract' [26]. To accomplish this, conservators will need some anthropological training and will need to become more culturally sensitive in general, in order to enhance safe access and become the facilitators for team

efforts. Finally, conservators need to reach out actively to colleagues in other specialist fields, and to indigenous cultures, in order to inform them about conservation and the ways in which we may work together to accomplish common goals.

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SUPPLIERS

ParafilmM®: a thermoplastic, self-sealing film that keeps moisture to a minimum and offers excellent barrier protection. Pechiney Plastic Packaging, Inc., 175 Western Ave., Neenah, WI 54956, USA, and laboratory supply firms.

Sticky Wax: an inert microcrystalline wax used by dentists and jewelers. Suppliers include Kerr Corporation, 28200 Wick Road City, Romulus, MI 48174, USA and Benchmark, Inc., Cane Farm Building 7, Rosemont, NJ 08556, USA.

REFERENCES

- Endere, M.L., 'Collections of indigenous human remains in Argentina: the issue of claiming a national heritage', [MA Museum and Heritage Studies Dissertation Abstracts, 1998, Institute of Archaeology, University College London], *Journal of Conservation and Museum Studies* 6 (1999), <http://www.ucl.ac.uk/archaeology/conservation/jcms/index.html> (accessed 6 July 2004).
- Samuel, M., and Borrero, R.M., 'Desecration of indigenous burial sites and display of indigenous remains', submission by Yachay Wasi (DPI) and International Romani Union (ECOSOC) to the Human Rights caucus of the United Nations Commission on Sustainable Development CSD-7 meeting currently at UN Headquarters in New York, <http://www.wac.uct.ac.za/archive/content/ref0002.htm> (accessed 6 July 2004).
- Ballinger, J., Phoenix Art Museum, personal communication (December 1999).
- McGowan, G.S., and La Roche, C.J., 'The ethical dilemma facing conservation: care and treatment of human skeletal remains and mortuary objects', *Journal of the American Institute for Conservation* 35(2) (1996) 109–121.
- Cronyn, J.M., *The Elements of Archaeological Conservation*, Routledge, London & New York (1990).
- Sease, C., *A Conservation Manual for the Field Archaeologist*, Institute of Archaeology, University of California, Los Angeles (1994).
- Watkinson, D., and Neal, V., *First Aid for Finds*, Rescue/UKIC, London (1972), 3rd edition (1998).
- Johnson, J.S., 'Consolidation of archeological bone: a conservation perspective', *Journal of Field Archeology* 21(2) (1994) 221–233.
- Koob, S.P., 'The use of Paraloid 8-72 as an adhesive: its application for archaeological ceramics and other materials', *Studies in Conservation* 31 (1986) 7–14.
- Kres, L.C., and Lovell, N.A., 'Comparison of consolidants of archeological bone', *Journal of Field Archeology* 22(4) (1995) 508–515.
- Pye, E., 'Caring for human remains — a developing concern?' in *Past Practice — Future Prospects. British Museum Occasional Paper 145*, ed. A. Oddy and S. Smith, British Museum Publications, London (2001) 171–175.
- Bass, W.O., *Human Osteology: A Laboratory and Field Manual of the Human Skeleton*, Missouri Archaeological Society, Columbia (1981) 262–267.
- Brothwell, D.R., *Digging Up Bones: The Excavation, Treatment, and Study of Human Skeletal Remains*, Cornell University Press, Ithaca NY (1981) 8–10.
- Byers, S., *Introduction to Forensic Anthropology, A Textbook*, Allyn & Bacon, Boston MA (1981) 128–130.
- Quigley, C., *Skulls and Skeletons, Human Bone Collections and Accumulations*, McFarland & Company, Jefferson NC (2001) 186–204.
- Ubelaker, D.H., and Scammell, H., *Bones: A Forensic Detective's Casebook*, Evans and Company, New York (2000) 36–40.
- White, T.D., *Human Osteology*, Academic Press, San Diego CA (2000) 295–296.
- Dongoske, K., Aldenderfer, M., and Doehner, K., *Working Together: Native Americans and Archaeologists*, Society for American Archaeology, Washington DC (2000).
- Janetski, J., Timican, G., Timican, D., Pikyavit, R., and Pikyavit, R., 'Cooperative research between Native Americans and archaeologists: the fish lake archaeological project' in *Models for the Millennium: Great Basin Anthropology Today*, ed. C. Beck, University of Utah Press, Salt Lake City (1999) 223–237.
- Spector, J., 'Reflections on Inyan Ceyaka Atonwan (Village at the Rapids), a nineteenth century Wahpeton Dakota summer planting village' in *The Future of the Past*, ed. T.L. Bray, Garland Publishing, New York (2001) 201–212.
- Cordova, J., and Bernal, B., 'Fascinación por las momias. Reforzamiento de la vida', *Chungará* 33(1) (2001) 91–93.
- Hall, T.R., and Wolfley, J., 'A survey of tribal perspectives on NAGPRA: repatriation and study of human remains', *Archaeological Record* 3(2) (2003) 27–34.
- Trimble, M.K., Odegaard, N., Cassman, V., and Milletello, T., 'The conservation and rehousing of the Kennewick remains' in *Human Remains: Conservation, Retrieval and Analysis Conference, Williamsburg, VA, November 1999*, ed. E. Williams, BAR International Series 943, Oxford (2001) 237–247.

- 24 Williams, E., ed., *Human Remains: Conservation, Retrieval and Analysis Conference, Williamsburg, VA, November 1999*, BAR International Series 943, Oxford (2001).
- 25 Janoway, R., Wilson A., Caffell, A., and Roberts, C., 'Human skeletal collections: the responsibilities of project managers, physical anthropologists, conservators and the need for standardized condition assessments' in *Human Remains: Conservation, Retrieval and Analysis Conference, Williamsburg, VA, November 1999*, ed. E. Williams, BAR International Series 943, Oxford (2001) 199–208.
- 26 Muñoz Viñas, S., 'Contemporary theory of conservation', *Reviews in Conservation* 3 (2002) 25–32.
- 27 Avrami, E., Mason, R., and de la Torre, M., 'Report on research' in *Values and Heritage Conservation*, ed. E. Avrami, R. Mason and M. de la Torre, Getty Conservation Institute, Los Angeles (2000) 3–11.
- 28 Lowenthal, D., 'Stewarding the past in a perplexing present' in *Values and Heritage Conservation*, ed. E. Avrami, R. Mason and M. de la Torre, Getty Conservation Institute, Los Angeles (2000) 18–25.
- 29 Clavir, M., 'The future of ethnographic conservation: a Canadian perspective' in *Past Practice — Future Prospects. British Museum Occasional Paper 145*, ed. A. Oddy and S. Smith, British Museum Publications, London (2001) 57–60.

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Résumé — On a peu écrit sur le rôle des restaurateurs dans la préservation de restes humains. Cet article examine les nouveaux défis auxquels sont confrontés les restaurateurs à mesure qu'ils sont davantage impliqués dans la conservation de restes humains par le fait de nouvelles lois et de divers projets relatifs à la protection des droits des communautés autochtones. Les auteurs explorent trois zones critiques concernant ce débat : l'expertise en conservation, la formation et la diffusion. Trois scénarios sont envisagés. Les auteurs suggèrent aux restaurateurs de choisir le troisième, faisant appel à la contribution d'un collègue, spécialement dans le domaine multidisciplinaire et hautement sensible impliquant l'étude de restes humains. On présente également le cas des restes de l'Homme de Kennewick, qui impliquait un travail d'équipe. Bien que la discussion soit limitée aux applications relatives à la préservation des restes humains, les concepts évoqués peuvent avoir de plus larges applications dans le domaine de la conservation en général.

Zusammenfassung — Über die Rolle des Restaurators bei der Konservierung von menschlichen Überresten ist bisher wenig publiziert. In dieser Arbeit werden die neuen Herausforderungen untersucht, mit denen Restauratoren, die sich mit menschlichen Überresten beschäftigen, konfrontiert werden. Besondere Beachtung finden dabei neue Gesetze und Bemühungen zum Schutz der Rechte eingeborener Gemeinschaften. Drei Bereiche werden von den Autoren kritisch beleuchtet: Konservierungskompetenz, Ausbildung und Auswirkungen. Dabei werden drei Szenarien präsentiert. Die Autoren schlagen in Anbetracht der in vielerlei Hinsicht hohen geforderten Sensitivität im Umgang mit menschlichen Überresten und dem multidisziplinären Ansatz vor, in allen drei Bereichen stets Kollegen zu Rate zu ziehen. Beispielfhaft wird das Vorgehen bei den Überresten des Kennewick Man präsentiert. Obwohl die Diskussion sich naturgemäß auf die Konservierung von menschlichen Überresten bezieht, können die daran entwickelten Konzepte auch auf das Feld der Restaurierung im Allgemeinen angewendet werden.

Resumen — *Es poco lo que hasta ahora ha sido escrito sobre el papel de los restauradores en la preservación de restos humanos. Este artículo examina los nuevos desafíos que se presentan a los restauradores a medida que se van involucrando más con los restos humanos, sobre todo bajo las nuevas leyes y criterios que protegen los derechos de las comunidades indígenas. Las autoras exploran tres áreas críticas en este debate: la conservación experta, la formación y la difusión. Se presentan tres escenarios para el papel del restaurador. Las autoras sugieren que los restauradores tomen como referencia el papel de terceros, el papel de 'colega contribuyente', especialmente en el ámbito multidisciplinario y altamente sensible del estudio de restos humanos. También se presenta el caso práctico de los restos de Kennewick Man, que requirió un amplio trabajo en equipo. A pesar de que la discusión se limita a las aplicaciones de los aspectos de la preservación de restos humanos, los conceptos tienen amplias aplicaciones en el campo de la conservación en general.*