Report of the Inventory of the Kennewick Skeleton

October 28-29, 1998

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Introduction

In accordance with the Court's orders and the parties' Revised Memorandum of Agreement, an inventory was taken of the Kennewick Man skeletal collection on October 28-29, 1998 at Pacific Northwest National Laboratory, Richland, Washington ("PNNL"). The inventory process began at approximately 7:00 a.m. on October 28, 1998, and concluded at 4:12 a.m. on October 29, 1998, after more than 21 hours of continuous work (with two brief meal breaks).

The objectives of the inventory were: (a) to identify and record all bones and bone fragments presently contained in the skeleton; (b) determine if any bones had been added to or removed from the collection since it left Dr. Chatters' possession in September 1996; and (c) determine if the collection represents a single individual. The first objective was accomplished in most respects, but some additional work is needed to complete the inventory. The last two objectives were accomplished completely.

This report describes my findings and observations concerning the inventory process and its results. Attached as Appendix A is a copy of the completed inventory forms signed by Dr. Trimble and myself. These forms list all of the elements in the collection. Appendix B is a narrative description of a large percentage of the individual bones and fragments contained in the collection. This description is based on the comments and observations that I audio recorded during the inventory process. As discussed in more detail below, a portion of my comments and observations were lost due to a recording mishap. Appendix C contains my recollections about the information that was found to be missing as a result of this incident.

As part of our inspection of the skeleton, a review was also made of its current condition. Dr. Chatters has prepared a separate report, setting out his findings concerning the skeleton's present condition and any changes that have occurred since he last saw it. I have included in my report some observations concerning the process used for the condition review.

Personnel and Procedures

The inventory and condition review were conducted in the Nez Perce Room of PPNL's Sigma V building. Inside the room were tables for unpacking and repacking the skeleton,

for inventorying the skeleton, and for examining the skeleton during its condition review. The examination tables were padded to protect the skeleton from contact damage. The room was adequate in size to have accommodated both Dr. Chatters and my data entry assistant, if she had been allowed. The arrangement of the layout space was organized and functional. The individuals handling the bones wore gloves and Tyvex aprons. I wore a 5X power magnifying lens for examining small details on the bones.

Present during the inventory and condition review (or portions thereof) were: myself; Dr. Michael Trimble; Dr. Trimble's two assistants, Rhonda Lueck and Teresa Militello; the government's conservation expert Ms. Madeleine Fang; two conservators selected by Dr. Trimble, Dr. Nancy Odegaard and Dr. Vicki Cassman; Dr. James Chatters; Brian Opitz , PNNL; at any particular time, an observer for the tribal claimants and an observer for the Asatru Folk Assembly. Different tribal observers rotated in and out of the room at varying intervals, as did the Asatru's observers. The last Asatru observer left at 5:45 p.m. and the last tribal observer left at 12:25 a.m. (October 29). Dr. Chatters was present from 5:00 p.m. until 2:10 a.m. on October 29.

The first step in the documentation process was to unpack the skeleton. Each item was checked against its assigned specimen number as the remains were removed from the two Action Packer storage containers. Ms. Lueck removed the bags from the containers and then each piece from its storage bag. Dr. Trimble and I checked off the identification numbers on the Master Catalog. Ms. Millitello then took a Polaroid photograph of each item. A scale and the catalog number were included in each photograph.

The next step was to arrange the collection in anatomical order. Some elements (such as the hands and feet) were grouped on padded trays, so it would be easier to work with them as units. Arranging a skeleton in anatomical order makes it possible to determine whether there are duplicate elements present (e.g., more than one left ulna, etc.) and to match previously unidentified fragments to their correct elements. Such a cross-check is particularly important for those parts of the skeleton that are highly fragmented or have many separate but similar elements, such as the vertebrae, ribs, hands and feet. The broken condition of the bones added further complexity to their identification. While many bones will be complete for this skeleton when it is reconstructed, only a few of the smaller bones are in one piece. All the other bones are in several pieces.

The process of laying out the Kennewick skeleton was difficult and time consuming. This was due in part to the fragmentation of the bones (more than 350 separate pieces present in the three collections) and their small size, many of which are less than an inch in length. Dr. Chatters is to be commended for recovering so many pieces of the skeleton from the discovery site. Another complicating factor was the need to maintain the association between each piece and its catalog number written on a loose paper tag (and with its original container as well). Fortunately, Ms. Lueck and Ms. Militello organized this task effectively.

Once the skeleton had been laid out in anatomical order, each bone was recorded on the inventory forms and its catalog number(s) checked. Fragments were identified where possible, and as much descriptive information as possible was obtained for each bone and fragment (e.g., size, structural features, antemortem and postmortem fractures, and anomalies). This information is important for future identification and will be helpful during reconstruction. Ms. Lueck assisted in this process by recording each element's presence (partial or complete) or absence on the inventory forms.

Because I was denied the assistance of a computer data entry assistant, I recorded my observations on an audio recorder. To ensure that I would have ample recording capacity, I brought eight 90-minute tapes. One tape was used to record portions of introductory comments and to document the process of accounting for the assigned catalog numbers and associated specimens while the skeleton was being unbagged. Five tapes were used to record my inventory observations. As discussed later in this report, my observations should have been recorded on six rather than five tapes.

The identification and description portion of the inventory process began at approximately 3:10 p.m. and continued until 2:30 a.m. the following morning (October 29th). After Dr. Chatters had finished his evaluation of the skeleton's condition, he assisted with identifying and matching rib fragments and the inventory of the hands and feet. His help was invaluable. The inventory could not have been completed in the time allowed without his help.

Once a bone or fragment had been identified and its pertinent data recorded, it was passed to the conservators for their condition review. Each piece had a separate conservator's data sheet on which information concerning its condition could be recorded. Late in the afternoon the conservators began repacking the pieces that had been inventoried and a review made of their condition. Repacking of the collection was completed at about 4:05 a.m. on October 29th.

Contents of Collection

When all fragments have been refitted into elements, the skeleton will be approximately 70-80% complete. The overall condition is good. All major elements necessary for scientific study are present except for large portions of the femora.

The skull is in at least eight pieces. With careful reconstruction, it will be complete enough for a full set of metric measurements. The cranial sutures are almost completely obliterated. This suggests an older individual. However other parts of the skeleton suggest a man of much younger age. Further evaluation will be needed to clarify the question of age.

Thirty of 32 teeth are present and in a remarkable state of preservation. All but two were still in place in the mandible and maxillae. The two missing teeth are third molars (wisdom teeth), which were not recovered from the site. Although the teeth are worn, small calculus deposits are still present. These deposits have the potential to yield dietary information if phytolith studies are performed. The wear patterns on the teeth and other specific dental traits may also yield information about this individual's diet and food processing behavior, if appropriately evaluated.

The innominates (hip bones) are fragmentary but will be nearly complete when reconstructed. Both public symphyses and the auricular surfaces, particularly useful features for assessing age, are present. Since the skeleton gives mixed signals about the age of this individual at death, careful cleaning of these surfaces and reconstruction of the fragments is important. Osteon counting will add additional precision to age assessment.

The long bones of the arms and legs, though in several pieces, are largely present with the exception of the femora which are represented by one piece from each side. With careful reconstruction important information about functional morphology and lifestyle can be learned from the skeleton. Handedness can be discerned. Pathological features are apparent and need further evaluation. General robustness, physical size, and information about activities can be assessed.

With Dr. Chatters' help, I was able to identify with greater precision about 130 previously unidentified or loosely categorized fragments. The ribs, though in more than 100 fragments, will be at least 80% complete after reconstruction. We were able to side and assign preliminary rib numbers to most of the rib fragments. I was also able to identify specifically about 30 other previously unidentified fragments. These included fragments from the left innominate, scapulae, and lower vertebrae. Unfortunately all of my identifications of cervical and thoracic vertebrae and of the right innominate were lost in the taping mishap mentioned above and discussed later in this report.

Finally, I was able to identify that 17 of the 18 bones from Collection A (recovered on 9/17/96) and one of the two bones in Collection B (recovered on 9/4/97) are consistent with human morphology. Based on their size, color, and state of preservation, they appear to represent missing pieces of the Kennewick Man skeleton.

About 20 fragments were too small to be identified in the time allowed, but I am confident many of these can be placed during the reconstruction process. I corrected several misidentified fragments. For example, the sternal ends of some ribs are present as well as a fragment of manubrium of the sternum, which was earlier thought to be completely missing.

The overall collection contains approximately 350 bones and bone fragments. The exact number is difficult to assign because a few fragments separated into smaller pieces after their original catalog numbers were assigned. Also, some fragments are held together by soil matrix. When this matrix crumbles away or is removed, the fragments will separate into pieces.

Results of the Inventory

The inventory that was taken of the Kennewick skeletal collection represents, in my opinion, a major achievement. Our understanding of the collection and its contents has been improved significantly. The information obtained and recorded during the inventory process will be invaluable for ongoing management of the collection and for planning any future studies that may be undertaken. Achievements of the inventory process include the following:

1. We have an accurate, high-level inventory of the anatomical elements in the collection.

The standardized inventory data forms attached as Appendix A identify the presence (complete or partial) or absence of all of the anatomical elements present in the collection. These forms include not only the bones collected by Dr. Chatters in July and August 1996, but also those items subsequently collected by other parties. As a result, we now have a unified record that integrates all of the elements belonging to the Kennewick Man skeleton.

Dr. Trimble's team and I are in agreement as to the representation of each anatomical element. To record our agreement, Dr. Trimble and I signed each page of the completed inventory data forms. Dr. Chatters was no longer present when this occurred (after 2:15a.m. on October 29th), and consequently it was not possible to obtain his signature. I would recommend that Dr. Chatters be allowed to re-inspect the collection when it has been rehoused at the Burke Museum so he can determine if he concurs with the identifications Dr. Trimble and I have agreed upon. If he does concur, he can sign the inventory data forms at that time.

Although this high-level inventory represents a significant achievement, a new updated Master Catalog must be prepared before we will have a complete, accurate list of all pieces in the collection. This is discussed in more detail later in this report.

2. Nonhuman fragments have been identified.

During the inventory process, I was able to positively identify seven fragments as nonhuman. These bones were reclassified to a faunal designation for storage separate from

the human remains. There are a few other fragments whose identification is uncertain. These should be evaluated by a zooarcheologist.

Dr. Trimble's team and I are confident that all the fragments now in the Kennewick Man collection are human, except for those designated for additional evaluation by a zooarcheologist.

3. The number of unidentified fragments is reduced.

As already noted, numerous fragments previously listed as unidentified have now been identified and matched to specific elements of the skeleton. Identification of these fragments will aid in efforts to reconstruct the skeleton for measurement and formal study.
Because of the limited time allowed for the inventory, some fragments could only be identified generally (e.g., as upper or lower rib fragments, etc.). I believe that the exact placement of most of these fragments can be determined when the skeleton is reconstructed for study. For example, it should be possible to assign specific rib numbers and sides to many of the rib fragments.

4. The collection is a single individual.

During the course of my career, I have examined the remains of more than 8,500 skeletons. Many of these situations have involved multiple burials with co-mingled remains. Based upon my examination of the Kennewick collection, I am satisfied that it represents one individual, a male. I found no evidence of a second individual. For example, there were no duplicate elements, size differences or other discontinuities that might suggest more than one person. The color, weight and preservation of the bones and fragments are consistent with a single individual.

Questions have been raised in the past whether the collection contains a third pubis fragment, (i.e., the fragment that was added to the collection on 9/17/96 as element 97.A.I.17a). I was able to identify this item as a piece of the Kennewick Man skeleton. It is a fragment of ischium that fits perfectly in an area of missing bone on the innominate.

5. Changes to the collection have occurred.

During my examination of the skeleton, I found no indications that any bones had been added to the collection during its storage at PPNL (other than those bones and fragments contained in collections A and B, which were maintained in separate containers). It is my understanding that Dr. Chatters concurs with this assessment.

On the other hand, reports concerning the loss of portions of both femurs are correct. If anything, those reports do not adequately acknowledge the magnitude of the loss. The

collection now contains only the proximal end of the left femur and the distal end of the right (as compared to virtually intact femurs videotaped by Dr. Chatters). Femurs contain invaluable information to assess stature, size, robustness, functional morphology, age, and population affiliation. In addition, many implications can be drawn about activities from features found on the femur. In this case, metric analysis will now be limited to a few measurements from the two fragments present. The loss of great portions of both femurs is significant and represents a deliberate act of desecration. I hope that diligent effort will be made to recover these elements and to determine who is responsible for their loss.

Although not as significant as the missing pieces of femurs, the bones that were taken from the collection in April 1998 also could have aided in reconstructing the skeleton. Their loss represents a potential reduction in the information that can be learned.

6. A foundation has been laid for future management and study.

The inventory process has provided information that will aid in future management and study of the skeleton. Some of the positive benefits that can be realized in this regard include:

- When the Master Catalog is finalized and agreed to, this record will enable accurate tracking of each item in the collection to monitor against future thefts and inadvertent losses.

- Related items in the collection can be now housed by anatomical categories (e.g., left and right ribs, vertebral column, specific long bones) to facilitate future study.

- A plan for accurate reconstruction of the skull and post-cranial skeleton can be formulated.

- Identification of previously unidentified fragments and unsided elements will speed the reconstruction process.

- Essential information has been gained for planning future study designs (i.e., we now have a better idea of what is possible).

- Scientists will be able to work more efficiently with the collection thereby reducing unnecessary handling and potential deterioration.

Other Observations

1. Unnecessary restrictions on data recording

My original plan was to document my observations on a laptop computer with the aid of an experienced assistant to act as data entry operator. My expectations in this regard were communicated to the government before execution of the Revised Memorandum of Agreement which expressly authorized me to use an assistant for recording purposes. During the week preceding the inventory, the government unilaterally announced that all recording devices, including computers, would be barred from the examination room. I consider this action to be a ridiculous breach of faith, and an attempt to hinder completion of the inventory ordered by the court.

It is fortunate the court's order expressly authorized my use of a voice recorder or otherwise even that recorder would have been barred. If I had been required to record my inventory observations using only the approved data forms and a pencil, as directed by the government, I would have failed. To record these observations by hand would have been impossible given the complexity and number of fragments that needed evaluation. Unfortunately the same restriction was imposed on the conservators, and they cannot be faulted if the quality and results of their evaluation were affected.

The government's ban on the use of computers and recording devices was nonsensical and was not consistent with accepted scientific practices, even in the context of pending or prospective litigation. I have worked on several hundred forensic cases and have never encountered restrictions of this kind. One consequence of this ban on recording devices was the lack of a back-up system to prevent the loss of data in the event of a mishap to the primary system (i.e., the audio recording system authorized by the court). As discussed in more detail below, such a mishap did occur and valuable data was lost. Such a loss would not have occurred if the government had not blocked my use of a data entry assistant as I originally proposed.

2. Effects of time constraints.

The tasks involved in inventorying the skeleton and reviewing its condition were more than could be accomplished in an eight hour (or even 12 hour) work day. We ended up working for over 21 continuous hours with only a few short breaks. Such a schedule resulted in a very intense work environment where the risk of mistakes was increased unnecessarily without the opportunity to recheck and validate our work.

The equivalent of almost one normal work day was needed just to unpack and photograph each piece of the skeleton and to lay it out in anatomical position. This was a complex process with more than 350 fragments that had to be assembled while maintaining the loose tag identification of each fragment. This process had to be completed before the inventory could begin. We began the process at 7:00 a.m. on October 28, 1998, and did not finish it until about 3:10 p.m.

As a result, I was not able to start the actual inventory, which included matching and identifying individual fragments, until almost 8.5 hours into the day's work. I worked continuously without a break until 6:20 p.m., when we stopped work for a quick supper. I began again at 7:05 p.m. and worked continuously until 2:30 a.m. without a break. I assisted others from then until I signed out at 4:12 a.m. on the morning of October 29, 1998.

One consequence of these time pressures and the fatigue that resulted as the day wore on was the inadvertent reuse of Tape 5. This mishap represents the loss of at least 2.5 hours of work and my associated observations. The information lost included detailed observations about the right innominate (which contains the projectile point and the pathology associated with it) and the identification of several fragments that are important for reconstruction. Also lost was my work to identify and match many of the fragments of the seven cervical and twelve thoracic vertebrae. I am not certain of other information which may have been on this tape. My recollections about the missing observations are in Appendix C.

The mishap may have occurred when someone (either myself or someone else when I requested assistance) flipped Tape 5 over by mistake (and thus reused it), instead of replacing it with a fresh tape. The loss of this effort is a major disappointment. We all worked diligently, and I thought carefully, but mistakes were inevitable under the high stress circumstances we faced. To replace the data lost as a result of this mishap, it will be necessary to re-examine the affected portions of the skeleton.

3. Uncompleted inventory tasks.

The inventory data forms signed by Dr. Trimble and myself represent only ___ step in the inventory process. Their purpose is to provide a general summary of the collection (i.e., the skeletal elements that are present or absent). If the skeleton were intact, these forms would be adequate for management and future study of the skeleton. However, when skeletal remains are highly fragmented as in the present case, more detailed documentation is needed. In situations of this kind, there must be a detailed list and description of every piece of bone in the collection. Without such a list, the movement and status of each individual item cannot be adequately tracked and monitored.

The work done on October 28th-29th has provided most of the elements needed for development of an accurate item-by-item list of the collection's contents. What remains to be done is to integrate those elements into a new Master Catalog Verification that lists every piece of bone (whether identified or unidentified) by its catalog number. The existing Master Catalog Verification that was created after the November 1997 inventory is no longer accurate or complete. It must be updated to incorporate all of the new findings made during the recent inventory. Under normal circumstances, such an update would have been done when the skeleton was inventoried on October 28th-29th. We did

not do so on this occasion because time was too limited and I did not have access to my computer system that could have provided an updated list of the collection upon conclusion of my examination.

To update the existing Master Catalog Verification four sources of information that must be reconciled: all handwritten notes on the working copies of the Master Catalog (by myself or Dr. Trimble); any handwritten notes on the loose tags (by myself or Dr. Trimble's assistants); my audio observations; and the bones themselves. Only when we have reconciled and agreed to the information contained in these sources will we have reduced substantially (if not eliminated) the potential for future disputes concerning the collection's contents.

For example, Dr. Trimble and I made quick notes on our respective working copies of the Master Catalog while the collection was being unpacked and laid out. We did not have an opportunity later to compare our notes to make sure they were consistent. Given the circumstances under which we were working and the sheer volume of the data we were dealing with, I would be surprised if our notes are consistent in all respects.

In addition, many changes were made in the status of different items (i.e., from unidentified to identified; from human to animal, etc.) during the inventory process. These are recorded in my taped observations. To my knowledge, neither Dr. Trimble nor Ms. Lueck had time to consistently write down every change. It is important to make sure that Dr. Trimble and I are in agreement as to all these changes.

We also need to reconcile my audio recorded observations against our handwritten notes and against the collection itself. Upon reviewing the transcript of the audio tapes, I have found a few discrepancies between my recorded observations and the handwritten notes I made on my copy of the Master Catalog. Although I have attempted to reconcile these discrepancies such a reconciliation cannot be considered final until it has been checked against the bones themselves.

My intention in voicing these concerns is to present an accurate picture of the complexity of this situation so the record is clear. Our energies by the end of the process were stretched to their limit, and there was simply no time to thoroughly reconcile every detail on that occasion.

4. Significance of the skeleton.

Having seen the skeleton, I am more convinced than ever of its importance. The relative completeness of a skeleton of this age from the Pacific Northwest is unique. Its overall condition is good. Reconstruction of the fragmented major elements will yield a nearly complete data set. I am convinced the skeleton is complete enough that with careful,

accurate reconstruction many questions can be answered about his biological affinity, age and condition at death, and lifestyle.

5. Need for study.

Comprehensive study of the skeleton is absolutely imperative. Among other things, morphometric measurements must be taken and analyzed. Such analyses will help answer the questions posed by the court. When analyzed, the metric measurements will determine whether the Kennewick Man skeleton falls within the range of variability of modern American Indian groups and how he relates to other world populations. However, these metric measurements will only yield useful information if they are compared with data in comprehensive databases. The metric measurements have little meaning in isolation and by themselves will not answer any questions.

There are other questions that need to be addressed if we are to have any hope of understanding this person's place in American prehistory. It is important that we be permitted to realize the potential of what was recovered.

The Condition Review

When the question of moving the skeleton to a new repository was being considered by the court, defendants represented that they would incorporate "to the extent feasible" the recommendations made by plaintiffs' conservation expert Carolyn Leckie. Among other things, she recommended the following: (a) a complete pre-move condition assessment of the collection and review of all collection care information; (b) outgoing and incoming condition checks; (c) pre-move preparation of a detailed preservation plan; (d) pre-move acclimatization planning. From what I could observe, none of her recommendations was fully implemented. Instead, the government opted merely to conduct an outgoing condition check and to gather information that could be used for preparation of a preservation plan after the skeleton's transfer was completed. I question whether even these limited goals were accomplished to the degree appropriate for a collection of this importance. Although they worked very hard, the government's conservators were faced with a situation where there was insufficient time and resources to accomplish all of the tasks that needed to be done.

Some of the difficulties they faced include the following:

1. Lack of advance planning

It appeared to me that the conservators were not given an opportunity to prepare and plan in advance for the condition review. At least two of them had little advance information about the collection. They were simply expected to show up on the

appointed day and begin collecting information. All three of the conservators were absolutely dedicated to the assigned task. However, it was unrealistic to expect them to complete such a complicated project without a more thorough advance orientation and preparation. If there had been more time, they might have benefited from my condition observations and osteological knowledge. However, time was so short we had few opportunities to collaborate. If nothing else, closer collaboration would have allowed them to focus their attention on the most scientifically significant elements.

In addition, a greater opportunity for us to work face-to-face would aid the conservators in their future assessments at the Burke Museum.

2. Time constraints

Assessing and recording the condition of more than 350 separate bones and fragments is an extremely complicated and time consuming task. In the present case, this task was even more complicated because of the catalogue and labeling system currently being used for the collection (i.e., loose identification tags that must be continuously tracked between each item and its storage bag).

3. Tool restrictions

The conservators were also affected by the government's arbitrary decision to bar all recording devices. This restriction limited them to pencils, diagrams, and standardized forms. This restriction combined with the limited time available and the complexity of the tasks involved made it difficult for the conservators to record pertinent information about the condition of the bones. After 2:00 a.m., the urgency was so great that they could perform no condition assessments or associate specific pictures with their individual records. From that point on, the fragments were only tagged and packed.

If the government had followed the parties' MOA and Ms. Leckie's recommendations, my information could have been provided to the conservators as we worked, in a hard copy computer printout generated during the inventory. They would have known on the spot each piece's identification and my condition-related observations. This information would have provided a solid baseline for their assessment.

The procedures and schedule followed for the pre-move conservation review in this case should not serve as a model in the future.

Recommendations

The government has now acknowledged that the skeleton must be studied. From a scientific perspective, study of this extremely important skeleton will be productive only

if the appropriate steps are taken. Preparing the skeleton for study must be planned by experienced scientists who are familiar with ancient remains from North America and who are not subjected to arbitrary government interference. The following issues must be addressed before study is attempted. To avoid these steps invites failure.

1. The loose tag system must be replaced.

The loose tag system presently being used for management of the collection creates logistical nightmares. Even with the most careful handling, the integrity of this catalog system will inevitably be lost during study of the skeleton. In addition, this system will complicate the study process and will prolong the amount of time needed for study.

2. The skeleton must be carefully reconstructed.

Reconstruction of the skeleton will be necessary before it can be studied. The fragmented nature of the skeleton and its potential to provide important information dictate that only the most qualified experts be considered for this delicate and precise task. The pieces are there, but many are tiny and present a significant reconstruction challenge. They will need to be reassembled with great care. The quality of the reconstruction will determine the accuracy of any measurements that can be obtained and the ability of investigators to make observations of anatomical features, pathological conditions, and other assessments. It is also important that a conservator be involved in the reconstruction process so there will be absolute assurance that all measures taken will be reversible and will not jeopardize potential studies or tests.

3. Extreme care must be taken in cleaning the skeleton.

Before the skeleton can be reconstructed, many of the bones and fragments must be cleaned to permit their correct placement and to remove foreign matter that could interfere with examination of the skeleton. The cleaning process is important, and care should be taken so there is no damage to the skeleton. On many fragments dirt is adhering to the bone cortex. The cortex will flake away with the dirt unless careful measures are followed.

Care must also be taken to capture the soil matrix adhering to the bone so the potential information that might be obtained from such sediments will not be lost. For example, analysis of the sediments adhering to and inside the bones (e.g., in the medullary cavities and inside the cranium) will provide clues concerning the taphonomic history of the skeleton. The effectiveness of such an analysis will depend, however, on whether study of the discovery site is permitted. The cleaning process could also reveal subtle features in the bones that could provide clues as to how the skeleton was positioned in the ground. Such information could help to reconstruct the context of Kennewick Man's death and whether his deposition at the discovery site was a cultural or natural event.

Concluding Comments

I wish to thank the court for its foresight in specifying in its last order that I could use an audio recorder for my observations. These observations could not have been captured with any degree of detail without a recorder. Transcription of these tapes took more than 31 hours, with an additional 22 hours to edit, cross check, and arrange it into a useful document. I thank Cleone Hawkinson for her help with these tasks.

Although the inventory process was long and grueling, it was a pleasure to work with Dr. Trimble, his assistants, and the conservators. They are extremely dedicated and hard working individuals. I appreciate the many courtesies they extended, and their cooperative spirit. I especially appreciate Dr. Trimble's willingness to allow me as much flexibility as possible within the limitations imposed by the government. Without his support, it would not have been possible to document as much data as was obtained.

Dr. Chatters' participation in the process was critical. His knowledge of the skeleton and the circumstances of its recovery are resources that cannot be duplicated or replaced. He completed all the tasks requested of him, and was generous in his willingness to share information and insights. I could not have completed the inventory without his help. Among other things, he identified the bones and fragments of both hands and both feet when it became clear that time was getting short. His tally of these pieces provided the data now reflected in the official inventory forms.

I appreciated the opportunity to inventory these remains. I completed this task on personal time away from work, and extended my stay by two days to begin this report. Inventorying the Kennewick skeleton was truly a labor of love for the field of anthropology and adds to my appreciation for the information that can be gleaned from the human skeleton about ancient life ways. Although the process could have been improved, I am proud of the results.

In my opinion it was a mistake to squeeze the inventory and condition review into a single marathon session that taxed everyone's capabilities. I hope that similar mistakes are not made with respect to study of the skeleton or to the tasks needed for a final cleanup of the Master Catalog to give us an uncontested, baseline inventory.

Submitted by Douglas W. Owsley, Ph.D.
November ___, 1998.