After the Fire: salvaging the stores of the Department of Archaeology & Natural History, Australian National University, Canberra

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Abstract

On 18th January 2003, a devastating bushfire swept through Canberra, the capital of Australia. In this fire, over 500 private homes were destroyed, along with many other commercial and public properties. The latter included a large building in the suburb of Weston, belonging to the Australian National University, which in part housed the collections of the Department of Archaeology and Natural History. The immediate priorities of the university were to help staff and students directly affected by the fire and to begin the restoration of the Mount Stromlo Astronomical Observatory that was also destroyed. Thus it was some time before personnel were allowed onto the site in Weston to assess the damage to the collections and the stability of the building. Once this was completed, a salvage team was set-up to 'excavate' the remains. This was a new process for all concerned and the methods employed were often changed to adapt to the circumstances. This paper provides an overview of the procedures used in the salvage, detailing what was retrieved and the post-salvage data management. This reveals that many of the problems encountered were a consequence of deficiencies in the management and methods of storage. In contrast, these problems are not so immediate in the carefully managed collections at museums. However, they are pertinent to the numerous stores scattered through natural history, anthropology and archaeology research departments worldwide. Often, but not always, these suffer from a lack of funds and/or curatorial staff, which adversely affects the implementation of procedures and strategies. This paper discusses the response of the Department of Archaeology & Natural History to the destruction of its stores, and highlights how this impacted on the methods employed for the salvage of archaeological, natural historical and ethnographic collections. From this, broad recommendations are made to allow for better preparedness and response when future catastrophe strikes, and which will ultimately allow for better management of collections.

Introduction

The following case study of the fire at the Weston Store demonstrates the need for –and often lack of- risk management and disaster planning for university research collections. Firstly, the background information will be presented detailing the firestorm that burnt through the archaeological stores, belonging to the Department of Archaeology and Natural History (ANH) at

the Australian National University (ANU), and its aftermath. Secondly, the initial response of the department and the salvage operations will be detailed. Thirdly, this will be followed by a discussion identifying areas of management and preparedness with the highest potential for improvement, and methods to optimise this process in future responses.

It is important to raise awareness of the risks to small-scale university collections because these collections usually have a relatively low public profile, especially when compared to museums and other publicly accessible institutions. However, these assemblages are, by nature of their collection, at the forefront of research in the discipline and hence often seminal to our understanding of the past. The lack of awareness of risk management and disaster response in our university department is not an isolated occurrence, there are many other collections held in similar circumstances and open to the same vulnerabilities. In order to initiate change, the first priority must be to raise awareness of the potential risks to these small research collections so that action may be taken.

Background

On the 18th January 2003, a firestorm swept through Canberra, the Australian capital city. The fire destroyed five hundred homes, in addition to other public and commercial properties, in a matter of hours. This sudden firestorm resulted from bushfires that had been burning in the nearby mountains for some weeks. However, there had been no prior warning that the fire was encroaching on the city. Nonetheless, Canberra is in a particularly fire prone area that regularly goes on high alert during the summer months. Only the year previously people had been warned of fires that were threatening property on the suburban fringe. Despite this, there were still no risk management or disaster preparedness plans for the Archaeology and Natural History Collections.

The ANU owns several properties damaged in the fires. Among these is a facility in the suburb of Weston that was primarily used as a horticultural quarantine facility and plant research laboratories for the Research School of Biological Sciences. However, other research departments had facilities on the site, including the Archaeology and Natural History storage facilities. Because of the rapid spread of the fire and the widespread confusion on the day of the fire, few were aware of the scale of the destruction wrought upon the archaeological collections until some days after the fire.

Figure 1: The main building (left) before and (right) after the fire. The stores were located at the far end of the building as show in these pictures. (Photo on left from Egan Insurance Report)

The ANH storage facility was completely destroyed. It had been situated on the ground floor and directly above this were offices, which all but disintegrated. It was the roofing materials, primarily the insulation, and the internal furnishings that burnt first. However, the intensity of the fire was so high that the entire building was rapidly destroyed, leaving only the steel framework supporting the outer walls. Furthermore, additional damage was caused when water was dropped by helicopter on the smouldering post-fire ruins to prevent the spread of embers to nearby property. The reaction of the water hitting the hot concrete slab on the upper floor caused it to fracture and consequently the floor caved in above the Archaeology and Natural History stores.

In the week after the fire, senior members of the department, accompanied by technical personnel, inspected the site. However, there was little they could do to assess the real extent of the losses, as the collapsed roof made the area inaccessible. Nonetheless, some of the remains around the outer edge (including those in Figure 2) were moved during this first visit so that they would not be destroyed when the heavy moving equipment lifted the upper slab (this was lifted, instead of just breaking it up, in an attempt to prevent further damage to fragile artefacts that may have survived). Otherwise, nothing could be done until the slab was removed, the area was properly inspected for contaminants and the remaining structure was stabilized.

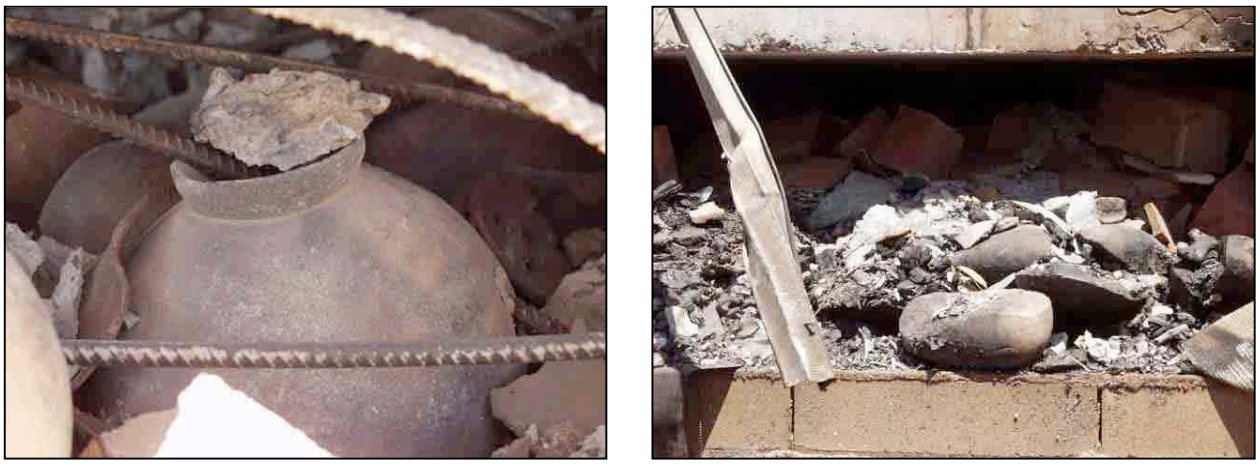

Figure 2: The remains found in the aftermath of the fire. The pot on the left had been pierced by steel reinforcing but was otherwise intact. Artefacts and ceramics visible between the slabs (right). (Photos courtesy of Darren Boyd, Coombs Photography)

The university had prioritised the restoration of the intensively used astronomical facilities at nearby Mt Stromlo, which had also been destroyed, so it was almost six months before the slab was removed. When this had occurred, ANH was given the go-ahead to salvage the remaining collections.

Preparedness

There was very little knowledge in the department of how to deal with the disaster. Consequently, there had been no risk management procedures put into place, nor was there adequate documentation of the archived material. The collections dated from about the 1950's onwards. There was no complete inventory of materials in the store, however, two documents included partial contents lists. The first was a short inventory of boxes prepared in 1999 with basic descriptions (i.e. the name of the primary researcher and number of boxes, sometimes this did not even include the relevant site name). Although brief and far from comprehensive, this did provided a broad outline of what to expect. The other list was a more detailed list concerning the collections made by the late Professor Rhys Jones. At the time of the fire, a catalogue of the materials was being compiled so that any further analysis could be done before they were to be repatriated to the respective communities. The lack of a complete inventory severely limited the speed and accuracy with which it was possible to identify artefacts and their appropriate collections. Adequate documentation of these collections is vital to prevent further loss of information in the future.

The response time after the initial inspections was very slow. This was primarily for reasons that were outlined above, particularly the need to remove the slab. However, this was compounded by the fact that, because many of the collections consisted of materials from past projects, a high proportion of the collections were made by people who had since left the department. Therefore, while the loss was great, it did not immediately affect the current research priorities of the department and, despite the great losses, members of the department had ongoing work and field

commitments. This contributed to the slow speed of the response. By implementing a management plan that details management responsibilities and a team to oversee disaster recovery, it should be possible to speed up the recovery efforts in the future.

Despite the fact that there was a large delay in accessing the site, once entry was possible, a group of people (under the supervision of the department's head technician) was assembled to clear the rubble left by the upper slab over the site. It was at that time that the authors became involved and aided in the planning of a methodical recovery effort. The acting head of ANH submitted our project proposal to the Head of the Research School of Asian and Pacific Studies and the Vice-Chancellor of the university. It was accepted and a full-scale salvage effort was instigated, aimed at retrieving all salvageable materials. Wal Ambrose, a retired archaeologist from the department, was asked to assist with planning the retrieval as he had a good knowledge of many of the collections affected. Thus, despite the delays a salvage effort did go ahead however time could have been saved if a disaster plan had been implemented in advance. This is an important consideration as exposure to the elements–after the removal of the slab- most likely contributed to the further deterioration of the remains, as was particularly evident in the case of the ceramics.

The Salvage and Remains

Archaeological techniques were adapted for use during the salvage. The area was gridded and items were removed and documented in sequence. The major advantage in implementing these methods was the thoroughness with which items were retrieved and the precision that the systematic recording of contextual information allowed in the later determination of pre-fire provenances. It was especially important to collect this contextual data where labels and other identifying marks had been lost.

What follows is a very brief outline of the methodology used in the salvage: a grid of one-meter squares was used to determine the relative position of remains within the site (Figure 3). Once started, each concentration of materials in a square was recorded as a provenance on a detailed site form. The salvaged material was removed from the slab, sieved, sorted

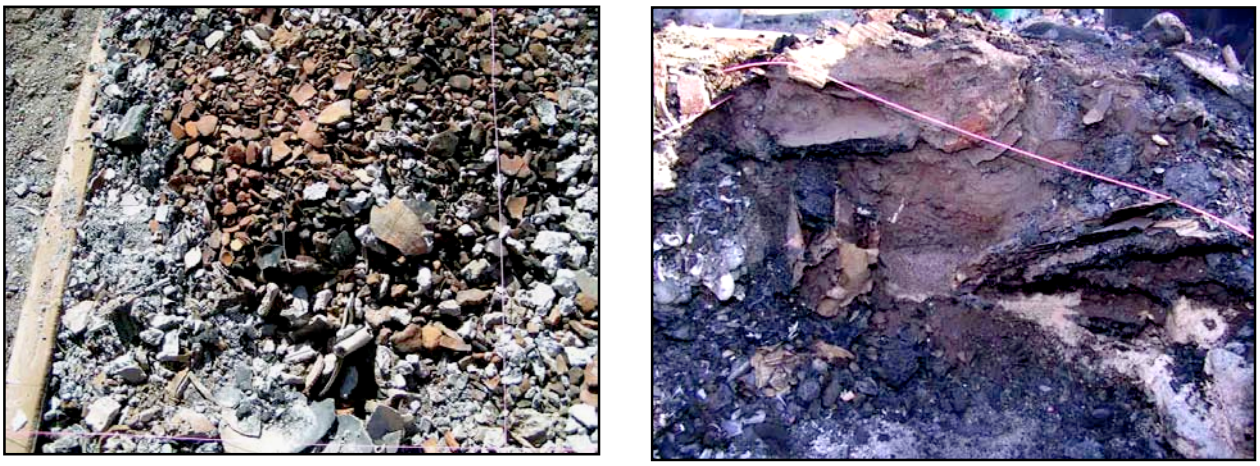

Figure 3: The surface of the site after the grid had been pegged out (left). A profile showing some of the complexity of the collapsed remains (right).

and temporarily placed in an adjacent open-air storage area. This was done for two reasons: firstly it allowed the materials to air-dry as many of them had become water logged and secondly it allowed us to work faster on the building area. This was necessary as we were constrained for time, since the university and the insurers needed to evaluate the structural losses. The artefacts and labelled materials were inventoried and placed on the relevant section of the storage slab. As a result of this method, a database of digital images and provenance details was obtained, which would be used after the salvage provenancing of retrieved materials.

Many of the collections affected were seminal sites used in the archaeological and natural history (particularly palynological) interpretations of Australian, Southeast Asian and Pacific prehistory. There were many different types of materials stored at Weston and this lead to obvious differences in the survival of material. Before the salvage began (but after the removal of the slab), it was possible to observe some of the more fire resistant artefacts lying on the surface (Figure 4). In most instances, stone and pottery collections survived well and the provenance of those that were labelled before being put into storage could be rapidly determined. Efforts are also underway to gather any available literature on all the collections so that the provenance of unlabelled, but distinctive objects can be determined. The storage facility had also contained large collections of

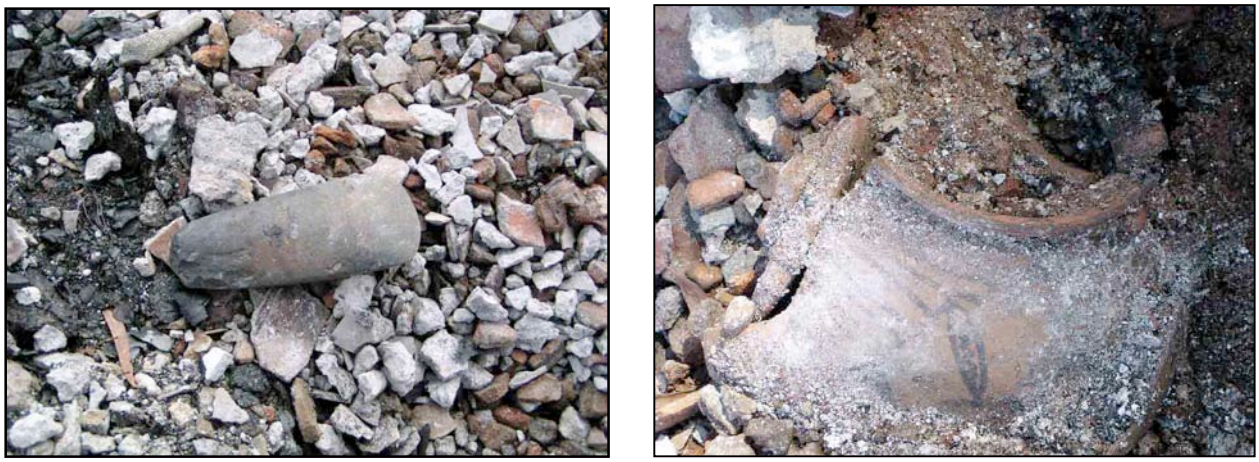

Figure 4: Surface remains, stone adze from Tonga (left) and ethnographic pottery collections from Papua New Guinea (right).

Figure 5: Concentrations of as yet unidentified bone (left) and shell (right) found in the ruins of the storage facility.

bone and shell (Figure 5). Although it is feasible to determine which sites these came from, it will be impossible to assign detailed provenances suitable for research. Those archaeological objects where pre-fire provenances cannot be determined will be retained for teaching purposes.

Preservation of materials, even those of similar fabric, differed throughout the site. In some areas it was so hot that obsidian flakes melded together (Figure 6). In contrast, microscope slides were found intact in their boxes less than one meter away. Closer to the floor, many more of the fire prone objects had survived. The fact that the bases of some of the tea chests used to store artefacts were intact, even containing small bags and labels, shows that the intensity of the fire was not very high at floor level (Figure 7). This is also indicated by the fact that some small, intact cardboard archive boxes and their contents were found at the base of the slab. Despite the often complete decomposition of storage boxes and bags, many of the items that survived were individually inventoried or otherwise identifiable. The differences in preservation across the site meant that it was also impossible to determine in advance which objects had survived.

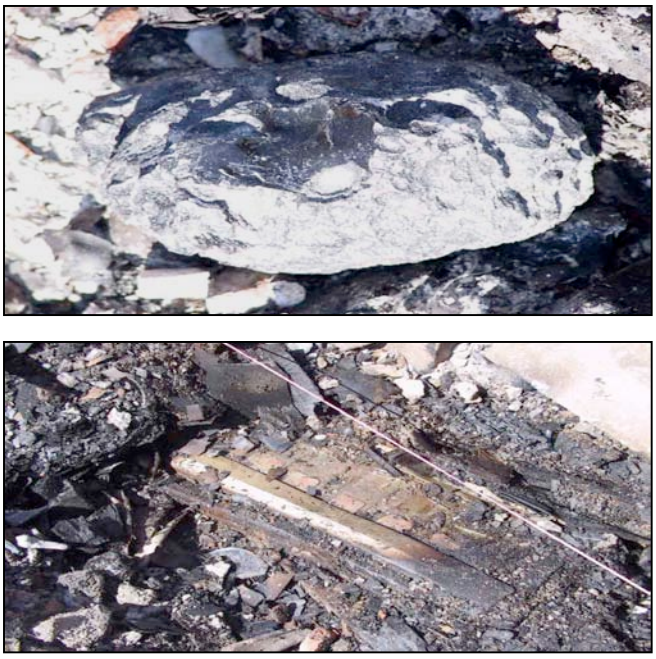

Figure 6: The intensity of the fire differed markedly. In places, obsidian flakes melded together by heat (top) while microscope slides found close by survive in their trays (bottom).

In all, over one thousand bags of material were salvaged. These contain objects that can be partially or fully provenanced as the project continues. The greatest proportion of these materials was archaeological and ethnographic in nature, as these robust items had the best potential for salvage. Collections that were particularly well recovered were materials from the Tongan archaeological sites excavated by Dr Poulsen, and materials from the sites of Kuk and Manim excavated by Professor Golson in Papua New Guinea. Non-artefactual materials recovered include many fieldwork note books from both the natural historians and archaeologists (Figure 8). Later in the recovery, it may be possible to transcribe some of the damaged field notes

Figure 7: The condition of materials found at floor-level was better than that of those above. Many of the artifacts had been packed into wooden tea-chests and placed at floor level. Although all of these were burned, often the bases and their contents remained intact (left). In other instances, almost unscathed cardboard boxes were found with their contents (right).

that were in the collections and otherwise unrecorded. Additionally, there were numerous boxes of Fortram cards that were formerly used with early IBM's. However, it is doubtful that these will be of much worth. While it was impossible to recover all the items that were in the stores at the time of the fire, by completing a methodological salvage, it was possible to retrieve important materials that retain their research importance.

Although the salvage efforts were successful in retrieving many important objects, in other instances prevention and better collections management would have been the only method to retain the collections which were lost. These irretrievable items included many palynological cores and archived slide mounts. In these instances, the cores had baked solid and even when the microscope slides themselves had survived, the heat had destroyed their contents. Other examples of items lost include soil samples that were burst and/or intermixed with foreign materials. In addition to these losses related to research, there was a
large amount of film in storage, mostly the unedited footage and interviews from Tom Hayden's, "The Last Tasmanian," a documentary film that won an Australian Film Industry

Figure 8: Charred notebooks, which despite the fact that they were heavily burned, often contained decipherable text (left) and old Fortran cards used in early IBM computers (right).

Figure 9: Objects that were mostly irretrievable, (a) film canisters burnt and warped by the fire, (b) although most of the film melted stills could still be seen on some isolated lengths of film. (c) Glass bottles were found that originally contained palynological specimens. The contents had disintegrated and the glass had been melted and warped.

award in the 1950's (Figure 9). The film canisters did not survive well although some lengths of charred film at the bottom still had visible images. Perhaps the greatest loss though was the numerous manuscripts and notes belonging to earlier members of the department that had been stored away and remained unexamined. Among these were many of the field books of Gurdip Singh, who was a pioneer in examining the natural history of the Australian continent. As mentioned previously, parts of these survived and can most likely be transcribed, however, they are but a small percentage of that which was originally present.

After all the materials had been removed from the storage area, impressions of the storage containers created during the fire could clearly be seen (Figure 10). This was an unexpected aspect of the salvage and the impressions were recorded in detail as they are of great assistance in determine the positioning of boxes and shelves before the fire. Such information is invaluable in the provenancing efforts.

Figure 10: Impressions, made by the fire, of stored items were found on the concrete slab once all remains had been cleared.

After the Salvage

The initial stages of the salvage, in which the material was retrieved and removed, took six weeks and was primarily aimed at getting the material off the remaining building slab (which is to be demolished) and into a new storage area. However, the salvage efforts will continue for another two years while the material is sorted, labelled, documented and new systems are put into place.

It is important that pre-disaster planning considers factors beyond the immediate salvage of materials. Possibly the most important aspect to consider is where the collections will be moved to. This is a particularly pressing problem if, like in this instance, the original facilities are completely destroyed. During the work, there were no other facilities available to store the salvaged materials from the Weston storage facility. This was temporarily taken care of by hiring industrial site offices that were placed at the Weston site. However, this was obviously not a long-term solution and there was many efforts made to secure new storage facilities. However a new building at another off-campus property of the ANU was eventually found and renovated. Hence the salvaged materials have been relocated.

Another priority in the post-salvage stages of the project was to inform the stakeholders (including those authorities that had given permission for the original collection to be made and the researchers that made the collections) about the circumstances surrounding the fire and what materials had been salvage. They were asked to communicate to us their wishes for the future management of any objects that were retrieved.

Future disaster planning and risk management

Given Canberra's history of bushfires in proximity to the city, there is a high risk that a similar fire emergency will occur again at some time in the future. If such a fire was to reach the main department or to affect the new (and more extensive) storage facilities, it could be just as- if not more- catastrophic than the current disaster. In this instance, there was no disaster management strategy that guided what to do. Nor was there a suitable risk management system to minimise the loss and the risk that this posed to the university. As the remaining material has been salvaged, this has highlighted a pressing need for a new storage management system. Recommendations for future management, including documentation of archives and policies, were included in a detailed report to the university (Swete Kelly & Phear 2004). The most important of these to prevent future calamities is the need to introduce a collections management and disaster plan and to keep it up-to-date. There is also room for staff training to make all individuals aware of the needs and potential risks. However, these recommendations are not limited to the Department of Archaeology and Natural History at the ANU, all university research collections have similar management priorities:

> Another type of repository in some academic institutions is a place for long-term storage of collections generated by its facility and students, as well as for research on those collections. Its mission, when stated, does not include public education through exhibits and programs. It fulfils its basic educational goal when faculty use the repository for teaching and research. This type of repository requires all the features of an academic museum but without the public outreach: up-to-date collections management, an inventory system, adequate research space, conservation, security, and fire protection. Unfortunately, some of these features are often not available due to lack of funding and inadequate staffing (Sullivan & Childs 2003).

The problems encountered in this case study are not isolated. While the level of preparedness differs from place to place, it would not be stretching a point too far to suggest that, in general, the management of university research collections is less than optimal. Universities generally lack the funding of larger institutions open to the public and are inadequately staffed for completing such time consuming tasks as collections management and inventory. However, by changing this, it would be possible to prevent irreparable loss.

If strategically approached, there are simple, short-term measures that would aid in such situations in the future and that are also economically feasible. Merely appointing someone within the staff, who is knowledgeable in the processes of disaster management and can receive up-to-date training, to oversee collections and to be alert for potential disaster situations would

help. In our case, perhaps such a person could have liased with authorities on the day of the fire and alerted colleagues to the importance of expediting their salvage efforts. There is also the potential to call on outside help if a disaster is beyond the capabilities of the department to cope with alone. DisACT, for example, is a local association of museums and government repositories in Canberra that aid each other in case of an emergency. The ANU is eligible to join and such assistance would have been invaluable, had we known about the group at the time of the fire. Developing a disaster management plan for the department will involve raising awareness campus wide, and would ideally include working with other departments who hold collections to form an integrated framework. Archaeology and Natural History is obviously not the only academic repository in the university and it would be a mistake not to try to address these problems on a wider scale. In addition, it is important to share the experiences gained through the salvage of the Weston Storage Facility and to raise awareness through outside forums, in the hope of minimising the impact of future disasters wherever they may occur.

Acknowledgements

We would like to thank the Department of Archaeology and Natural History, Australian National University for providing funding to attend the 2004 annual meeting of the Society for the Preservation of Natural History Collections where this paper was presented. We would also like to thank Wal Ambrose and Gillian Atkin who were also involved in managing the Weston Store salvage efforts and the team of volunteers who aided the recovery.

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