

# *History*

---

## BATTLEFIELD LEGACIES: THE AUSTRALIAN COLLECTION OF WWI PATHOLOGICAL SPECIMENS<sup>1</sup>

R. Hearder<sup>2</sup>

“All wars of any magnitude and duration must be won primarily on the medical front.”<sup>1</sup>

---

<sup>1</sup> Hearder R. Battlefield legacies: The Australian collection of WW1 pathological specimens. *Aust Mil Med* 1999; 8(3):24-28.

<sup>2</sup> Rosalind Hearder BA (Hons) is a military medical historian who is currently doing her PhD in history at the University of Melbourne.

<sup>3</sup> There no longer seems to exist any documentation that records the name or nationality of patients from whom specimens were taken.

On Remembrance Day 1993, the body of an unknown Australian soldier was lowered to its final resting place at the Australian War Memorial, Canberra. In the words of then Prime Minister Paul Keating, the body of this unknown man, found on the tortured landscape of the Somme, represented the loss of all Australians in war. "He is all of them", Keating declared, "and he is all of us."<sup>2</sup> As Australia honoured its Unknown Soldier, other unidentified human remains, sat without ceremony in glass jars, in a storage room in Canberra.

They were a collection of pathological specimens taken from casualties of the World War of 1914-1918 by Australian Army Medical Corps (AAMC) personnel. The collection consisted of jars containing preserved body parts illustrating the effects of modern warfare on the body. Examples included feet showing the consequences of "trench foot", lungs affected by Mustard gas attacks, and various wounds inflicted by bullets, shells and shrapnel.<sup>3</sup>

There are few aspects of Australia's involvement in WWI that have not been endlessly discussed and debated. But occasionally, a historian can be lucky enough to come across an interesting and important story that has not been told before. The Australian WWI pathological collection is one of those stories. It represents not only a fascinating aspect of Australian military history, but specifically of military medical history - an area that remains largely untapped by historians.

This story begins in 1919, when the ship *Wandilla* left England for Australia, carrying its unusual cargo - crates containing 700 pathological specimens collected from WWI battlefields. But *why* was this collection taken at all? For that, we must go back to 1915. Even at this early stage, it was clear to medical officers that this war was leading to injuries and illnesses, some of which had never been seen before, and on a scale previously unimaginable. So, under the combined direction of the British War Medical Committee and the Royal College of Surgeons of London (RCS), a decision was made to make a collection of specimens, as a permanent record of the unique nature of injuries sustained during battle conditions. British, Canadian, New Zealand and Australian medical personnel all collected specimens, on the understanding that each country would take their collection home with them. American medical personnel also separately formed their own collection.

The Medical Committee hoped to obtain approximately 2000 "wet" specimens, 600 bone specimens, and an accompanying

collection of diagrams and X-rays.<sup>3</sup> Specimens were acquired at the autopsy of a patient or following surgery. Regardless of the nationality of the medical officer who collected it, each specimen was despatched to the College to be indexed, along with a clinical history of the patient from whom the specimen was taken. The majority of the specimens were collected from Casualty Clearing Stations (CCS) on the Western Front from 1916. To a lesser degree, specimens were later also collected from military hospitals in the Middle East. The role of collecting specimens at the CCSs was augmented in 1917, when general base hospitals also began to make significant contributions.

The importance given to the collection by the British Army medical authorities in 1916 is shown by the fact that during that year, at least thirty international military medicine authorities visited the RCS storehouse of specimens so far collected. By 1917, the RCS held over 1500 specimens, and by 1918, 2700.<sup>4</sup>

It was only in early 1917 that the interest and role of the AAMC in the collection greatly increased. This was despite lessons learned by the AAMC from the medically disastrous 1915 Gallipoli campaign.<sup>5</sup> At Gallipoli, medical staff were insufficient in number and supplies were grossly inadequate for the scale of injuries and disease that was to arise. This campaign was the key event "that opened the eyes of the War Office to the importance of pathologists in the diagnosis and prevention of disease".<sup>6</sup>

Specimen collection continued for a few months after the cease-fire of November 1918. By early 1919, the number of jars filled with various pathological specimens in the storerooms of the RCS Museum amounted to approximately 3893.<sup>7</sup> At this point, their allocation took place - those specimens collected by the medical corps of other Allied countries were forwarded - and those collected by the AAMC began the long journey back to Australia. The British collection remained in the RCS Museum, to be added to the many other pathological specimen collections held there.<sup>4</sup>

The specimens sent to Australia were to be utilised by Australian universities after the war, in the education and training of future military medical personnel. However, after their arrival in Australia, the collection was neglected. By the 1960s, all but 160 specimens out of approximately 700 had been destroyed, and these were put in storage, doomed to remain forgotten.

<sup>4</sup> All but a handful of these WWI British specimens were destroyed in a May 1941 bomb raid during the Second World War.

The collection's history has been largely characterised by apathy and ignorance of its potential value. To understand why, it is important to explain why this collection was initially deemed important by Australian military medical authorities during the war.

There were three main reasons why the collection came into existence. Firstly, it was envisaged as a military medicine educational tool, both during and after the War. The specimens would "serve as permanent records",<sup>8</sup> to teach future military doctors and pathologists about the medical conditions of the First World War, and the lessons learned. Despite predictions of a short war, WWI became long and bloody, resulting in many new and complex medical conditions. Wartime technological developments were a double-edged sword – on one hand, there were better communication systems and increased industrial efficiency, and on the other, improvements in weapons technology also directly contributed to the slaughter of millions of people. Retrieval and transportation times of the wounded to treatment often took several hours, or sometimes days. Trench and gas warfare, and the accompanying persistence of disease made it necessary to keep a record – not only of the War's effects on the body, but also as a measure of the nature of medical work required, and the advances made during the war in medicine as a result of exposure to these conditions.

A second less obvious motivation for Australian medical personnel was that to possess a part of the wider Allied collection would add prestige to Australian medicine. Apart from its educative worth, the AIF saw the collection as a tangible memorial to the work done by Australian medical officers. In December 1918, a *Medical Journal of Australia* article stated:

*The medical experience of the war must be utilised for possible future use. The medical profession in Australia must be placed in a position to profit by the successes and failures of the great four year's war...*<sup>9</sup>

A third important aspect of this collection was what it symbolised for national identity. At the outbreak of war, the AAMC was a small, part-time specialised adjunct to Britain's Royal Army Medical Corps, and subsequently "as there was no regular medical service, there was no authentic Australian tradition."<sup>10</sup> The research work of the AAMC during the War, including the specimen collection, represented a scientific maturity and coming of age for Australia in the field of military medicine, in the attempt to establish an identity distinct from their British medical colleagues. The

AAMC's voluntary involvement in the specimen collection was not for Britain, but for Australia, which as medical historian Col. A. G. Butler wrote "was in 1914 almost completely *terra incognita*",<sup>10</sup> in the world of medical knowledge. An editorial in the *Medical Journal of Australia* in June, 1918, stated:

*We remain the only country at war from which an Army Medical Service has been sent, planned and arranged according to an antiquated principle...*<sup>11</sup>

Arguably, the collection represented an important part of the birth of an Australian military medical tradition.

After such high hopes for the collection, what actually happened when it reached its destination? Australia's portion was to be distributed between Australia's universities – Sydney, Melbourne, Adelaide, Tasmania (Hobart), Queensland (Brisbane) and Western Australia (Perth). The latter three agreed that their portions of the collection to be held in trust by the Pathology Department of the University of Melbourne, pending their eventual creation of medical schools.

After inquiries made in 1919 by Major-General Sir George Cuscaden, Deputy Director-General of the AAMC, all six universities clearly stated their interest in gaining a portion of the collection, the understanding being the specimens would be used in medical training. On arrival, the entire collection was handed over to the head of the newly created department of Pathology at Melbourne University, Professor Sir Harry Allen. Defence records throughout 1919-1921 show that all the universities received their parts of the collection.

Despite a promising beginning, the collection's fate in Australia was far from what was planned. There is some evidence that until the early 1930's, the specimens were used in teaching at Sydney and Melbourne Universities, both by the military and in academic circles. However, by the 1940's, the collections at the Universities of Adelaide, Western Australia and Queensland had been destroyed, and the University of Tasmania collection had somehow been lost. Twenty years later, all but seven specimens of Sydney University's collection had been destroyed. Only three of these universities have any documentation left that confirms that the university did in fact have the specimens.

In 1933, the Melbourne collection was handed over to the Institute of Anatomy (IA) in Canberra, following a personal request from its curator, Professor Sir Colin Mackenzie – one of the AAMC personnel who participate in the

specimen collection during the War. It is only this portion of the entire collection that survives today. This is probably due to the fact that these specimens spent the next 50 years in relative anonymity at the Institute, first as part of its larger exhibitions, and then in storage from the 1970s.

In 1931, the IA had been defined as having two central functions: that of a natural history museum and a human nutrition research centre. A collection of specimens illustrating unique war-related conditions and specifically intended for advancing education of military medicine did not fit that description.

In 1984, the Commonwealth Government officially closed down the Institute, considered an unproductive use of government building space. The IA's various collections were passed on to the National Museum. Government agencies were suddenly confronted with decisions about ownership and responsibility for an unknown war specimen collection from the past.

There are no clear answers why the value of this collection in Australia has taken so long to be recognised. Was the collection regarded as unimportant? Or was the neglect due more to the fact that its existence had simply been forgotten? There are three possible explanations. The first and perhaps most obvious is that after the War, there was an inevitable shift back to "civilian medicine". This probably resulted in a decline in the prestige attached to the collection, and a reluctance to remember the more disturbing parts of the War, in favour of its more heroic aspects. In the pre-antibiotic civilian era, research into infectious diseases would have probably been thought more important than specimens displaying war wounds when no war was taking place.

Secondly, by the time WWII and subsequent conflicts occurred there was a distinct feeling that medical developments had been such that knowledge of military medicine was perceived to be completely different and superior to that of twenty years earlier - the medical era to which the collection belonged. The Second World War medical officer had better treatments, equipment and medical knowledge at his fingertips. It had been said in 1920 that the WWI specimens would "serve to educate the Army Surgeon of the future."<sup>12</sup> Unfortunately, the Australian Army Surgeons of WWII were either not interested, or more likely, none of them were even aware of the collection's existence. For example, in 1939, at the University of Melbourne, a pathology lecture was given on war wounds and their treatments - only four years after Melbourne's collection of specimens were moved to

Canberra. No mention was made of them at all.<sup>13</sup>

Had Australia not been involved in subsequent military conflicts, then the collection would have had little medical value. These further conflicts continued to exhibit medical conditions and injuries similar to those displayed by the WWI specimens. For example, an interesting aspect of the Korean War was that, as in WWI, part of the fighting took place in trenches, in appalling weather. A condition called "Rice Paddy Feet" developed - the Korean War's name for WWI's "trench foot", and was the cause of many medical evacuations.

There were also some similarities in the Vietnam War with WWI wounds. The use of mines and booby traps produced "multiple ragged and infected wounds",<sup>14</sup> similar to WWI shell wounds. Although there was a delay of only a few hours at most to treatment, with the average time around 20-40 minutes, there were still wounds that became septic from the multiple nature of the injuries, especially those from mines.<sup>14</sup> Also, because many of the gunshot wounds were shot at close range with high-velocity bullets, these wounds exhibited gross tissue damage in the immediate wound and surrounding areas, as in WWI.<sup>14</sup> Trench foot was also a factor in Vietnam, with the constant damp, and troops' frequent partial immersion in water and swamps. Australian medical teams learned to combat it, yet it remained such a problem among American troops that they sought help from Australian medical units in dealing with it.

Thirdly, the impact of the Anzac legend must be considered when reflecting on the fate of the collection in Australia. It has been written that the legend of Anzac is "a complex mix of fact, remembering, forgetting, and longing."<sup>15</sup> It is, however, selective remembering. Anything that threatens to disrupt or introduce difficult issues into this national cultural marker becomes problematic. The collection of WWI specimens - one of the most graphic and real reminders of the horrors and real suffering of the "Anzacs" does not sit well with the mythologising of war. It drives home a reality that many people do not want to face - that thousands died from painful and chronic medical conditions, poor hygiene, and a general lack of knowledge and experience about effective treatment of unprecedented battle wounds. Understandably, Australians want to choose to believe that their soldiers died on the battlefield, shot cleanly, dying instantly. They do not want to think about men suffering from trench foot or a slow agonising death from gas poisoning or gangrene.

So, where does this collection now “fit in”? When the Institute of Anatomy closed down in 1984, several issues were raised about the future of the collection. There have been both supporters and opponents of its continued existence.

One of the most vocal opponents was the Hon. Dr Carmen Lawrence MP, who in 1996 brought up the issue in Parliament, in her capacity as Shadow Minister for the Environment and the Arts. Having learned about the collection in connection with the plans for the proposed National Museum (where the collection was being stored), Dr Lawrence said that her main concerns were on ethical grounds: firstly, of consent on the part of the dead soldiers to use their body parts as pathological specimens, and secondly, that families of the donors were never informed.<sup>16</sup> However, there is no information about these specimens that indicates the names or even nationality of the patients from which they were taken.

Others have argued that consent *was* given, by the act of men joining the army and agreeing to participate in acts of war. Whether a soldier would agree to donate his body to science was simply not a consideration. It cannot be stated with any certainty that the soldiers themselves or their families would have objected, as they were not given the opportunity. For issues of consent to be imposed upon the collection would be a matter of retrospective conjecture, within a framework of contemporary attitudes - a problematic exercise.

Some question whether this collection actually *does* present any ethical issues. As Air Vice-Marshal Michael Miller, Surgeon-General Australian Defence Force from 1990-1992, has pointed out, “most pathological and museum specimens are *not* collected with informed consent”.<sup>17</sup> Why then is this collection seen as different? Even though the collection may contain body parts of Australian soldiers who are revered in our national culture, only *some* of the specimens may be Australian, which makes it problematic when judging how “our” soldiers should or should not be commemorated. This becomes particularly salient when one remembers that 23,000 Australian servicemen from WWI have no known grave.<sup>18</sup>

Another objection to the collection is that the nature of the specimens is too graphic for public display, and therefore if they are of no practical use, they should be destroyed. However, this argument loses force when it is remembered that the specimens were displayed - for over 40 years at the Institute of Anatomy, without any attention or objections.

Many visitors and even schoolchildren had filed past them.

Those who do support the continued existence of the collection base their opinion primarily on the grounds that what remains is still useful in an educational context, and that to destroy it would be to lose a unique and irreplaceable body of reference from the medical history of WWI.

As Air Vice Marshal Graeme Moller, a recent Surgeon-General of the Australian Defence Force pointed out, a “thorough knowledge of mechanisms of injury is fundamental to military medicine ... an understanding of pathology underlies all military medical training.”<sup>19</sup> Weapons and conditions have changed with every war after WWI and the role and focus of military medical research has shifted. Yet, research in military medicine is still based on the same general principle as in WWI - how warfare affects the human body. The WWI specimens represent medical lessons learned, and they were meant as a teaching tool for those lessons. As Air Vice-Marshal Miller said, “that’s *why* people collect pathological specimens.”<sup>17</sup>

A recent example is an article published in the US periodical *Science*, by Dr Jeffrey Taubenberger, who conducted research on the genetic characterisation of the 1918 “Spanish” influenza virus.<sup>20</sup> By using DNA samples taken from the American collection of WWI pathological lung specimens, the Americans were able to further understand the nature of the virus. This research would not have been possible without the WWI specimens.

Eighty years after they were taken, the specimens are finally being used as they were intended. The WWI specimens are currently housed at the NSW Institute of Forensic Medicine. Small groups of Australian military medical personnel study them, under the supervision of the Director, Associate Professor John Hilton (Group Capt. RAAF rtd.), to increase their knowledge of wounds and illness faced in this earlier conflict, and their continuing relevance.

Are these specimens of both medical and historical value? Yes. In a direct sense, each specimen powerfully and realistically represents a common part of the WWI soldier’s experience - the battle with injury and disease. Medicine and its applications will always be an integral part of any wartime situation, and as much as possible of the experience must be recorded. The collection tells a story of the importance accorded military medicine during WWI, and the implicit desire to learn and avoid similar medical problems during future conflicts. Indirectly, the specimens provide a marker at which to compare subsequent

improvements and advances in Australian military medicine over the past 80 years, in a way that no book, photo or memoir can portray.

Despite the similarity that both the Unknown Soldier and the specimen collection are human remains, the significance is that the *intention* behind each is different. The Unknown Soldier acts as a memorial to all those Australians buried overseas, or to those without known graves. It serves to remind those who see it of the tragedy of war, and the high cost of Australia's involvement in it. In contrast, the specimen collection was never *intended* to be something to commemorate, but to educate, in a specific setting and field - namely military medical circles.

The collection's distinctiveness as part of Australia's War experience lies in the fact that although it does have historical importance, its key function remains in what it can pass on about lessons learned.

## References:

1. MacCallum P. "Medicine and the Modern World", Address to British Medical Association, Biennial Conference, 13th-16th February 1951, Christchurch, New Zealand. University of Melbourne Archives, Personal Correspondence file, Box 7, File 49.
2. Keating PJ. Funeral service of the Unknown Australian Soldier. *J Aust War Memorial* 1994; 24 (April):6.
3. MacPherson WG, Leishman WB, Cummins SL (eds.). *Official History of the War: Medical Services - Pathology, Vol.1*. London: 1923, p.575.
4. Royal College of Surgeons of England. *Annual Report* 1917 and 1918.
5. Tyquin M. *Gallipoli: the medical war - The Australian Army Medical Services in the Dardanelles Campaign of 1915*. Kensington: 1993, p.199.
6. Tebbutt AH. Pathology in war-time. *MJA* 1918; 1(May 25):433.
7. Royal College of Surgeons of England. *Annual Report* 1919.
8. Royal College of Surgeons. *Annual Report* 1917.
9. The Medical History of the War. *MJA* 1918; 1 (Dec 7):472.
10. Butler AG. *Official History of the Australian Army Medical Services in the War of 1914-1918, Vol. 3*: 223-230.
11. Wasted Opportunity. *MJA* 1918, 1(Jun 1):457.
12. Royal College of Surgeons of England. *Annual Report* 1920.
13. MacCallum P. Lecture on war wounds. *University of Melbourne Archives* 1939, Personal Correspondence file, Box 6.
14. Okeefe B. *Medicine at War: Medical aspects of Australia's involvement in Southeast Asia 1950-1972*. St Leonards: 1994, pp. 67-98.
15. Garton S. *The Cost of War - Australians Return*. Melbourne: 1996, p.9.
16. Header R. *Interview with The Hon. Carmen Lawrence MP*, Canberra, June 3rd, 1997.
17. Header R. *Interview with Air Vice-Marshal Michael Miller*, Canberra, July 23rd, 1997.
18. Londey P. The Tomb of the Unknown Soldier. *J Aust War Memorial* 1993; 23(Oct):45.
19. Header R. *Interview with Air Vice-Marshal Graeme Moller*, Canberra, July 1st, 1997.
20. Taubenberger JK, Reid AH, Krafft AE, Bijwaard KE, Fanning TG. Initial genetic characterization of the 1918 'Spanish' influenza virus. *Science* 1997; 275 (21 Mar).