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Professor John Carroll,
Department of Anthropology and Sociology,
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Dear Professor Carroll,

Review of the National Museum of Australia

I understand that you are the chair of a panel that is currently reviewing the content of the National Museum of Australia. I have not seen its exact terms of reference, but I gather that the representation of Aboriginal issues in the museum is one of the major concerns of the review.

I have done some major research on another issue, the place of science and scientific collections in the museum. Keith Windschuttle, one of the prominent critics of 'black armband' history, has also been outspoken on this issue (Keith Windschuttle, 'How not to run a museum: People's history at the postmodern museum', *Quadrant*, Vol 15(9), September 2001, pp 11-19).

As an historian of science, I was puzzled by Windschuttle's criticism. It was predicated on the notion that a national museum 'ought' to be about science, something that seemed odd, given that the Museum's Act determined that it was to be about 'history'. I was also surprised that Windschuttle had not noticed the extensive 'history of science' materials in the *Tangled Destinies* gallery. If he had spent time in this gallery, he would not have accused the museum of overlooking, for example, the myxomatosis story, prominently displayed there.

I was most of all concerned that his paper accused the National Museum of having omitted science because of the sway of 'politically correct historians', a criticism that he has levelled at the stories of indigenous Australia as well. This simply overlooked the facts of history: the scientists wanted to keep major scientific collections in places where they would be used primarily for research, not for display and educational purposes. National collections were of most value in CSIRO, herbaria and in existing state museums, where there were already research efforts in zoology, botany and other taxonomic sciences. It made no sense to duplicate either the collections or the research effort. The stories of science in the NMA have benefited from loans and other support from national scientific organisations such as CSIRO, according to their acknowledging captions.

Windschuttle's criticism prompted me to publish some work tracing the history of a range of national scientific collections, and ascertain why each had not been transferred to the National Museum of Australia. I have a major paper in press (it has been refereed and will appear in the next issue of *Historical Records of Australian Science*, the journal of the Australian Academy of Science.) I thought it might be helpful to supply your committee with a copy, as you may well be deliberating before it is published.

As far as your review is concerned, the most important aspect of the paper is that it shows that Windschuttle *completely overlooked the historical preferences of the scientists*, so keen was he to prove a conspiracy by present-day historians. I urge your panel to review material presented in the museum exhibitions in the light of the full history of their development, not just in the context of debates in the immediate past years.

Yours sincerely,

Libby Robin BA(Hons), BSc, Dip Ed, PhD
Fellow

Collections and the Nation: Science, History and the National Museum of Australia

Libby Robin¹

While there seemed to be general agreement about the need for a National Museum, there is scope for much divergence of opinion about its origin and function.

William Hartley, President, Royal Society of Canberra, 1959¹

Introduction

Australia had its first 'national' museums before federation. Sydney is home to the Australian Museum (established as the Colonial Museum in the 1820s).² Melbourne's Museum Victoria was founded in 1854 as the Museum of Natural and Economic Geology, but has been known for most of its life as the National Museum of Victoria.³ In 1859, the Royal Society of Tasmania also made an effort to build a 'national museum of natural history and the arts' to house the Society's collections and library.⁴ It was eventually established, without the national tag, in Hobart in 1862 and is known today as the Tasmanian Museum and Art Gallery. These early nationalist efforts focused strongly on the 'rare and curious' fauna of Australia, and were strongly supported by élite colonial scientific societies.

Federation brought new ideas about a 'national museum', and its associated 'national collections'. In 1902, Arthur T. Woodward, Director of the Art Department, Bendigo School of Mines articulated a vision for a new centralized museum at a meeting of the Library Council of Australasia. With great prescience, he also foresaw its difficulties:

The task of getting the trustees of the different state museums, the different legislatures and the people into a frame of mind that shall make the denuding, to an extent, of their respective institutions an act of eager patriotism, will be fraught with considerable difficulty and delay. Sooner or later a National Museum will be founded, and it must be clear to any thinking person that no good can come of having a multiplicity of collections and no central one.⁵

Until there was a location for a national capital away from Melbourne, there was no point in a new national museum, as far as Sydney and the other states were concerned. But once the Federal Capital Territory had been chosen and Canberra named as the nation's capital in 1913, the idea of national collections for the new city re-emerged.

Different national collections inspired different potential museums for the national capital. During the century it took to build the National Museum of Australia there was a striking shift in emphasis from a 'museum of science' to a 'museum of history'. Since 1980, the National Museum of Australia has been charged with the task of developing and maintaining the 'National Historical Collection'.⁶ When the new museum finally opened its doors to the public in March 2001, its exhibitions were shaped by the ideas of curators largely trained in the humanities, particularly history. Yet the pre-federation notion that a national museum 'ought' to be about science continues to have currency in

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the twenty-first century, in at least some circles.⁷

This paper reviews some of the historical events surrounding the amassing of ‘national collections’ in a variety of disciplinary areas. It shows that the drift away from scientific towards historical materials for the national museum collection was not a conscious move by nationalist historians or anyone else, but rather the result of changing pressures on collections of all sorts. Some of the supporters of an institutional focus on history were research scientists whose ongoing work depended on national biological collections. Many of the collections gathered for the nation were simply accidents of circumstance or serendipity. The vision for the institution, and the amassing of collections, were on separate trajectories for much of the century.

National collectors

Arthur Woodward’s idea of a national museum did not find support from any government or patron wealthy enough to build it. Collecting for the new nation, however, appealed to a number of people, especially those working beyond the typical disciplines of the museums established in the colonial era.

The idea of collecting as a form of hunting has been explored by cultural historian Tom Griffiths.⁸ The National Museum of Victoria, the Australian Museum and the other colonial museums were natural homes for typical ‘trophy’ like bird and animal skins, skeletons and minerals.⁹ By the time of federation, the people who made these ‘traditional natural history collections’ were complemented by some others with different purposes, including a number with growing interest in the material culture of Indigenous peoples.

Some (but by no means all) of the early twentieth century collectors aspired to go beyond ‘rarity and curiosity’ and to reach a more sophisticated, research-driven audience. These collectors were attracted to the idea of a national research collection. Their collections were typically not garnered with a view to conventional zoological (vertebrate) systematics, nor were they collecting objects of beauty or fascination to the untrained eye. Invertebrates, stone tools, microbial material on glass slides and anatomical specimens preserved in glass jars are not the first items that one would choose to entertain the general public. Yet such items all potentially represented concerns for a national research agenda, if collected with sufficient care. Such items had the power to inspire another museum, but probably only with the support of the non-government sector. Such collections needed a wealthy and prestigious patron.

The MacKenzie Collections, 1919–1938

Sir Colin MacKenzie (1877–1938), an eminent orthopaedic surgeon of the Melbourne establishment, was one of the most distinguished of the new post-federation generation of collectors. Deeply concerned that Australian marsupials were disappearing fast, he collected as many whole and partial specimens of them as possible, preserving them for their anatomical and physiological significance. These series of ‘wet specimens’ were at the core of a major collection he wanted to ensure would be preserved for science, even after the animals themselves were extinct.

He served in London from 1915–1917 at the Military Orthopaedic Hospital in Shepherd’s Bush, and this gave him an opportunity to present several practical applications of marsupial research to an international audience. He dissected the workings of the koala’s

shoulder, intrigued by the exceptional ability of the animal to grasp gum leaves overhead, and used the implications of his dissection for orthopaedic surgery on and splints for the human shoulder. His work took a uniquely Australian animal and put it on the Empire's medical research agenda. Treatments based on his koala work were used for injured soldiers and also for victims of infantile paralysis (poliomyelitis).¹⁰

National and international medical science also had a local spin-off: MacKenzie was very concerned about conservation. Koalas were particularly popular among Australian animals. Historian Jennifer McCulloch has described them as the 'national pet' in this period. MacKenzie's research, despite its cost to individual animals, became part of the high profile and successful conservation campaign that opposed koala hunting in the 1920s.¹¹

When MacKenzie returned from the war in 1917, he converted part of his private home in St Kilda Road, Melbourne, into a laboratory and museum. From 1919, he referred to this as the 'Australian Institute of Anatomical Research'. His growing collection of anatomical specimens was crucial to his book *The comparative anatomy of Australian mammals* published in four volumes in 1918 and 1919.¹² The collection continued to grow, and in 1923, despite generous offers from the United States, the financially independent MacKenzie offered it as a gift to the Commonwealth of Australia. Senator G. F. Pearce, Minister for Home and Territories, expressed his thanks to MacKenzie on behalf of the nation in these terms:

The collection, which will form the nucleus of an Institute of Zoology to be established later at Canberra, is one of the finest in the world, having been built up as a result of many years of patient effort and at considerable expense. As the value of the collection lies more in its historical interest – which is undoubtedly great – than in its importance as an aid to medical science in the study of comparative anatomy..., it will be readily appreciated that the donation of such a gift at a time when our fauna is rapidly becoming extinct, and the collection of representative specimens is becoming increasingly difficult, constitutes an act of practical patriotism the merit of which it would be hard to over-estimate.¹³

MacKenzie's collection was donated with the conviction that its *scientific* value was of crucial national importance. It was given at a time when science was very much on the national agenda. George Currie and John Graham described it as a 'dramatic period', when 'scientists and men of vision convinced the political leaders of their day that scientific discovery could render valuable service to their developing country'.¹⁴ Yet, Pearce, the politician, chose to focus on the MacKenzie collection's national *historical* interest. The intersection between the scientific and the historical emphasis of this collection continued to frame many later discussions about what should properly constitute the collections of a national museum.

Under the terms of the *Zoological Museum Agreement Act 1924* the MacKenzie collection was destined for Canberra, but until its accommodation was built, it remained in Melbourne. The collection of specimens 'of a value without price ... when live specimens are not obtainable' shaped discussions about a possible national museum of zoology.¹⁵ Others saw it as the first step towards a broader national museum.

A national museum and its collections — the Mackay review of 1927

The possible museum building and the nature of the collections raised overlapping questions. In March 1927, G. H. Mackay chaired a Parliamentary Standing Committee on Public Works on the 'National Museum of Australian Zoology, Canberra'. 'With the establishment of the Museum at Canberra,' the Mackay Committee declared optimistically:

it is expected that many people now holding valuable collections of specimens will present them to the nation, as has recently been done by [ethnological collectors] Dr George Horne..., Mr Murray Black and Dr Arthur Nankivell. The Museum also possesses the [W.W.] Froggatt collection, the most valuable Australian entomological collection in the world.¹⁶

The Mackay Committee, with a good public service eye, threw its weight behind a building in the hope that it might serve to attract more 'free' collections for the nation, like the ones it named. Meanwhile it left open the question of what might constitute a suitable framework for the collections themselves. It was a circular argument: without the institution there would be no donations, but unless the building was custom-built for the collections and research community it served, the collections might reasonably be seen to be better kept elsewhere.

The Rivett vision for a national museum

'Museums have evolved in a continuous and increasingly intimate relationship with the nation-state', as historian Graeme Davison has commented.¹⁷ This is particularly true of a national museum in the national capital. Serendipity and chance could not be its guiding principles. In 1928, David Rivett, chairman of the new national science organization CSIR, was charged to review 'the general question of a national museum for Canberra', because of the growing pressure of potential national collections.¹⁸ Were these collections of national significance? If they were significant, the next question was how they might work together as the nucleus for an institution.

One impetus for this enquiry came from the new Professor of Anthropology at the University of Sydney, Alfred R. Radcliffe-Brown. In 1926, under his leadership, anthropology emerged to prominence as a new 'national' discipline.¹⁹ With generous international support from the Rockefeller Foundation, Radcliffe-Brown had established an active field program in New Guinea, Papua and northern Australia. He also took on the (self-appointed) task of advising the Commonwealth on 'the management of native populations'. As Warwick Anderson has described, the University of Sydney trained administrative cadets for Australian mandated territories and the remote north of the country and provided regular anthropological advice to both Commonwealth and State governments.²⁰ Radcliffe-Brown and his students had amassed considerable ethnological material in the course of this work. By 1928, he was using these collections as a tool to lever more direct support from the Commonwealth for his department, which he argued was providing an unsupported service to government. He was highly critical of Australia's national investment in this area:

The Australian National Research Council is now expending funds on anthropological research at the rate of £3,500 per annum and ...the whole of the money so expended is provided by the Rockefeller Foundation of New York which recognises the value to mankind of the researches that we are carrying out.²¹

The uncertain state of the University of Sydney's growing, but unhoused, ethnological collection was an embarrassment that Radcliffe-Brown wanted to exploit. Since the funding for the venture was international, the Australian government could hardly complain about the burden of the growing collection, but Radcliffe-Brown needed to persuade the government to assume some responsibility for its maintenance. Radcliffe-Brown had already prepared a report on *The Need for a National Museum of Ethnology* in 1927. Such a museum would 'preserve, study and exhibit objects illustrating the mode of life and customs of the aboriginal (sic) inhabitants of Australia and the adjoining regions', he argued, but the report languished in the office of a bureaucrat.²² In the meantime, much of the ethnological material was sent to overseas institutions for safekeeping.

Rivett was not given the benefit of the Radcliffe-Brown museum document and conducted his inquiry independently, but his committee was conscious that ethnological collections were a major growth area. Reviewing the nexus between the Australian National Research Council's interests and those of the national collections became part of Rivett's brief partly because of pressure from Sydney. The nation was already responsible for some major private ethnological collections, including those of Horne, Black and Nankivell alluded to in the Mackay Committee report. What was the relation of these offers to existing collections, in particular, those in State and University museums? Should available collections dictate an overall 'national' direction for a museum? Or should this be determined first by independent criteria?

With his colleagues, Charles Anderson and James Kershaw, the Directors of the Australian Museum and the National Museum of Victoria respectively, Rivett found he was confronted with an odd assortment of national collections to rationalize into a 'museum'. As well as Radcliffe-Brown's ethnology and MacKenzie's anatomy, there was another request in 1928 to evaluate a proposed donation of a Western Australian mineralogical collection valued at £3750:

It is considered desirable that the matter of obtaining material for the Museum should first be considered in a very broad way rather than that specific offers of sale of collections be dealt with as they may chance to be made.²³

It was the mineralogical collection that precipitated the appointment of the committee, to 'make a recommendation on the matter'.²⁴ Zoology was the prime reason for a museum, in line with the *Act* of 1924, but botany, geology, ethnology and anatomy also claimed the committee's attention.

The Rivett committee recommended a compromise, a 'national museum of zoology' that could embrace unusual collections not appropriate to state museums, whilst building more mainstream systematic collections through a 'Scouting Division'. The prime role of this division would be to maintain close links with State Museums and build collections from their duplicates, from co-operative collecting expeditions, and from judicious purchase of scientifically worthy private collections.²⁵ Collaboration, not competition, was the thrust of the proposal.

The Committee distinguished carefully between 'medicine' and 'zoology', and was cautious about whether the Institute of Anatomy could be properly regarded as part of a 'Commonwealth Museum':

In so far as this Institute is to be devoted to research work in medicine and surgery, it might be inadvisable to associate it directly with the Museum. But looked at as a Museum of comparative anatomy, comprising all types of

Australian zoological specimens, such a place might very well be constituted as the first unit in the Commonwealth Museum...²⁶

The report proposed a museum of 'detached, but fairly closely spaced buildings' in proximity to the 'botanical and entomological research laboratories [that] are about to be established in Canberra' (for the CSIR).²⁷ The model was designed to avoid duplicating the efforts of the State museums and of the emerging CSIR, and to put administrative space between those organizations and the 'national museum'. It could be adapted to include the Institute of Anatomy, or not, depending on the research directions taken by that organization. Potentially it could also embrace the urgent ethnological concerns in a way that would 'fill a need in Australia which is not at the present time being met elsewhere'.²⁸ There was no urgency, the report declared, for a national museum of zoology. The committee was 'of the opinion that the need for [a Commonwealth Museum] was probably not great', but 'immediate action' was needed with respect to an ethnological division (to follow the Institute of Anatomy).²⁹

MacKenzie's response: The Australian Institute of Anatomy, 1929–1938

MacKenzie was determined, despite the predictable conservatism of a committee dominated by the interests of State museums and CSIR, to claim a 'national museum of zoology' tag for his institution. He sought to use his strength in medical research to distance himself from the systematists of the state museums and elsewhere, and to argue that this research was in the vanguard of new zoological work. Zoology was 'essential to medical science', he declared in his 1928 presidential address to section D of the Australasian Association for the Advancement of Science.³⁰ He had no doubt that zoology was both a national and a nationalist enterprise, and felt the need to articulate further some connections with comparative anatomy. Zoology could work in the service of humanity, but MacKenzie actively distinguished between people and animals, a tactic essential to gaining the confidence of the many conservative anti-Darwinians still powerful in Australian national life in the 1920s. His 1928 speech dwelled long on the human erect posture:

The most intellectual [of all mammals], erect man alone possesses the prefrontal brain, associated with which is the development of the characteristic human forehead.³¹

Having established the 'superior humanity' inherent in an erect posture, MacKenzie then nationalized it:

Probably no game in the world exercises the erect posture functions more than the Australian game of football. It is founded on sound physiological lines and has been no small factor in the physical development of our nation.³²

MacKenzie invoked a progressivist philosophy that intertwined claims for intelligence, utilitarianism and the popular national sport. In this, he was following a tradition developed in the nineteenth century that applied equally to sport, science and art, and to institutions such as Mechanics Institutes, art galleries and Schools of Art.³³ Historian of science Jan Kociumbas describes this tradition as a 'liberal effort to advance useful knowledge'.³⁴ It was also a powerful force in the movement towards full public education. Mechanics Institutes, for example, were attractive places for Government Botanist, Ferdinand von Mueller to lodge specimen books to ensure that ordinary people

‘could identify the plants they saw’, a point made by historian Sara Maroske. Mueller saw Mechanics Institutes as places ‘frequented at hours when artisans, etc have best time for their reading and instruction.’³⁵ The justification for funding such ventures was that science (or arts) education would lead to ‘an improvement of design and so promote commerce.’³⁶

MacKenzie was interested in improving the design of the human body itself, and thought it appropriate to display such knowledge in a national museum. He did not just justify the national idea of his collections to learned audiences. He wanted the objects themselves on display. He had the conviction (and the means) to build an institution that would remain a monument to his life’s work. MacKenzie was aware that his museum was not ‘a museum in the ordinary sense of the word, as all the specimens exhibited there will really have some connection with human health and disease, and have been assembled from the view-point of medical practice’.³⁷ Nonetheless he sought an institution that would reach the broadest possible public.

The national museum of zoology was in fact, the second ‘national’ museum mooted for the new city of Canberra. The first, the Australian National War Memorial, had been inspired by First World War historian, C.E.W. Bean. By the mid-1920s, the War Memorial was in possession of a ‘rich and diverse collection’, a Director, John Treloar, but no building.³⁸ MacKenzie was aware of the inertia with respect to promises for a War Memorial. Blessed with comfortable means, he ensured the safety of his collection for the nation by contributing generously to its housing.³⁹ In an era when Canberra itself was barely established, MacKenzie and his new wife moved in 1928 to supervise the creation of a building for the new Australian Institute of Anatomy. Despite the financial difficulties of the depression era, a beautiful and scientifically functional building was completed between 1929 and 1931 featuring marsupial gargoyles, stone facing and other expensive artistic details possible only because of MacKenzie’s generosity.⁴⁰ MacKenzie used his position to lever ‘in-kind’ rather than cash support from the financially strapped Commonwealth, in the form of land for an auxiliary research station and reserve for native animals (a ‘zoo’).⁴¹

The drive for the Institute of Anatomy was directly attributable to MacKenzie’s personal influence. Its relationship between the Institute and its responsible body, the new Commonwealth Department of Health, directed by another distinguished medical practitioner, J.H.L. Cumpston, was not always smooth.⁴² Cumpston regarded the Institute as rather a sideline for his new progressive department established in the wake of the influenza pandemic of 1919 to promote preventive medicine through epidemiology and other new branches of medicine. Cumpston’s nationalist program for public medicine was ‘to cherish health rather than to treat illness’⁴³, contrasting sharply with MacKenzie’s rather mechanistic orthopaedic anatomy. Following MacKenzie’s death in 1938, the purpose-built Institute of Anatomy was partly resumed as offices for the Department of Health as this department grew following the establishment of the National Health and Medical Research Council in 1937. Under Cumpston’s leadership the Institute did, however, continue to serve as a centre for intellectual and academic life in Canberra through the war years.

The ethnological collections regarded as ‘urgent’ at the time of the Rivett report still had no proper housing. Ian McShane suggests that Radcliffe-Brown’s ‘nationalist’ vision for ethnology was undermined by the Cambridge anthropologist, A.C. Haddon, who, in a letter belittling both Radcliffe-Brown and the collections, recommended that the

Australian Museum would be a more appropriate place for his ethnological material.⁴⁴ A.P. Elkin succeeded Radcliffe-Brown as Professor of Anthropology at the University of Sydney from 1934 and remained there until 1956. As the President of the Association for the Protection of Native Races (from 1933–62), he advocated an assimilationist program for Aboriginal peoples, using social anthropology to ‘smooth adjustment’. He did not want to preserve tribes as ‘museum specimens’, and therefore had a different approach to their material culture.⁴⁵ Elkin actively placed distance between the Sydney Anthropology department’s new program and the cultural artefacts collected with such enthusiasm in the 1920s.

Meanwhile, MacKenzie was not shy of taking up the cause of ‘ethnological’ work himself – albeit with an anatomical bias. Throughout the 1930s, he supported another ‘George Murray Black collection’. He encouraged the farmer and hobbyist not just to collect stone tools, but to ‘obtain aboriginal specimens’ as well. Black dug up Aboriginal skeletons from burial mounds along the Murray River between 1929 and 1950, 1600 of which were eventually presented to the Australian Institute of Anatomy.⁴⁶ The blurred distinctions between bodies and tools led to the housing of stone tool collections in the basement of the Institute of Anatomy, whilst they awaited the building of an ethnological division and the appointment of suitable curators. If the Australian National Research Council had had its way, such ‘ethnological collections’ might equally – and perhaps more appositely – have ended up at the proposed War Memorial in spaces designed ‘for other national collections (such as war relics etc)’.⁴⁷ Many stone tool collections of course stayed in their State Museums (the Australian Museum, National Museum of Victoria and the South Australian Museum, in particular). But for collections regarded as ‘national’, especially those from northern Australia, New Guinea and Papua, MacKenzie’s Institute of Anatomy building in Canberra remained their logical home. The Radcliffe-Brown ethnological collections of the 1920s languished in its basement, losing their labels to silverfish and neglect.

Entomology collections, 1929–1947

The Australian continent had an enormous variety of insects and relatively few systematic collections of them in the 1920s.⁴⁸ We are still slow to recognize our entomological riches and continue to need reminders such as ‘There are more varieties of ants on Black Mountain in Canberra than in the whole of the British Isles!’⁴⁹

Many insects were pests to the national agricultural economy so it was hardly surprising that they would become the focus of some of the first systematic, nationally funded zoological collections. The Division of Economic Entomology, one of the first divisions of the new CSIR, was based in Canberra. Its systematic collections, so necessary because there were few decent entomological collections in State museums (except for charismatic beetles and butterflies), were also naturally established in Canberra, whatever the origins of the specimens. Many of Australia’s most evident insect pests were in the north, so when Tom Campbell was appointed to the Division in 1929, he went straight off to north Australia to work on buffalo fly. He also collected extensively for four years in the poorly surveyed Daly River, Katherine and Kimberley regions, and visited Bathurst and Melville Islands where he made a substantial butterfly collection. His series of termite specimens encouraged Gerald Hill, a termite specialist and CSIR’s first scientific appointee, to return to the north to make more extensive collections

in the 1930s. In the 1930s and 40s, Ken Key also began systematic surveys and collections of the Orthoptera (grasshoppers).⁵⁰

In 1927, the E. W. Ferguson private collection of weevils became the first entomological collection to be purchased for 'the Museum in Canberra'. It became an early part of the CSIR Entomology collection. The collections made by W.W. Froggatt, the NSW Government entomologist from 1896–1923, were regarded as very important as Froggatt not only collected, but also described new species. His collection, representing nearly all the groups of Australian insects, was 'greatly enhanced by the fact that it contains many types and authenticated specimens of species originally described by the author and by specialists abroad'.⁵¹ Froggatt offered a summary of his collection to MacKenzie, who arranged that he receive £500 for the collection for the 'National Museum of Zoology' (in Melbourne, when the transfer occurred in 1928). It was only later, in 1929, when Gerald Hill brought the collection to Canberra, that Winifred Kent Hughes, who curated the CSIR Entomology collections, and the division's Chief, Robin Tillyard, discovered its neglected condition. The Mackay Committee's view of the Froggatt collection (based on the assessment of MacKenzie) had exaggerated its value.⁵² The idea of national collections for a national museum, however, gathered momentum among the small entomological fraternity. A number of beetle collections came to CSIR Canberra, including those of T.G. Sloane's (from near Young 1880s–1932), H.J. Carter (one of several collections) and the Western Australian beetles of A. Goerling, who died in 1941. Sometimes the 'national' proved confusing: both Athol Waterhouse's Butterfly Collection, and the R.J. Tillyard Insect Collection were broken up between CSIR and other museums, not a desirable outcome.⁵³ Moths fared better than most. Although the W.B. Barnard collection, initially willed to CSIR, eventually went to the Queensland museum, the A.J. Turner collection (also from Queensland) was described as the 'best preserved, best classified and most comprehensive collection of Australian moths in existence' when it arrived at CSIR in 1948. A deal struck in 1931 whereby CSIR and the Science and Industry Endowment Fund paid for the collection's housing, allowed CSIR to acquire the collection on Turner's death. Between 1931 and 1947, Turner himself carefully curated the collection of 20 eight-drawer cabinets at his home in Brisbane.⁵⁴

Botanical collections, 1929–1946

The long established herbaria and botanic gardens in all states were established on the model of Kew Gardens, London, so botanists traditionally collected and corresponded with herbaria, rather than museums.⁵⁵ The Division of Economic Botany (from 1930, Plant Industry) was one of the founding divisions of the Council of Scientific and Industrial Research, but its herbarium remained separate from the zoological, anatomical and ethnographical collections of the 1920s national museum. In 1929 its first Herbarium officer (Mr J. Calvert, trained at Kew) was appointed to manage vouchers of weeds and poisonous plants. This provided the beginnings of a national herbarium, Herbarium Australiense.⁵⁶

The idea of integrating a herbarium into the Commonwealth Museum mooted in the Rivett report, found little support. The tradition of herbaria working closely with botanic gardens looked set to continue, when in July 1933, a Botanic Garden was recommended for Canberra by the Federal Capital Advisory Council. Bertram T. Dickson, foundation Chief of CSIR Economic Botany, set a pattern for cooperation with the CSIR Herbarium when he presented a report on the establishment of Canberra's Botanic Garden in

September 1935. Wartime financial constraints delayed action, and it was not until 1944 that Lindsay Pryor was appointed Superintendent of Parks and Gardens for Canberra. Two years later in 1946, CSIR Division of Plant Industry acquired its first systematic botanist, Nancy Burbidge, and its Herbarium acquired its first professional curator.⁵⁷

The state of national collections in the 1950s

The 'Commonwealth Museum' remained a low priority for three decades following the Rivett report. A cultural institution that 'commemorated sacrifice and comradeship' was a much higher priority under the shadow of the Second World War, as museum scholars Ian McShane and Tony Bennett have commented.⁵⁸ The idea of a museum for the War Memorial was revisited and by 1941, the 'war relics' had a home.⁵⁹ Other 'national' collections, however, languished in various unsatisfactory temporary homes.

The early national mineralogy collections suffered not so much neglect as catastrophe. The first Commonwealth Palaeontologist, Frederick Chapman, appointed in 1927, had previously been palaeontologist at the National Museum of Victoria (1902–27) and was based in Melbourne. In 1936, after Chapman's retirement, Irene Crespin, his successor, brought the 'national' mineralogy collections to Canberra. She was based initially at the old Census Building, Commonwealth Geological Branch headquarters. Crespin and the collections moved in 1945 to the basement of the Melbourne Building in Civic, the home of the Bureau of Mineral Resources, Geology and Geophysics. On 10 April 1953, this building suffered a massive fire. At least 3,000 of her slides were lost, and there was extensive damage to many specimens. By the late 1950s, the rest of the collection had moved several more times finishing up in a basement at the Administrative Buildings.⁶⁰ Crespin was an active and enthusiastic curator, trying to build collections under difficult and disheartening conditions.

At the ANZAAS meeting in 1946, D.C. Swan told Section D of the need for 'a central organization for insect identification and taxonomy'.⁶¹ This became the theme of the 1950s. Entomological collections were growing fast, but without long-term certainty. The Economic Entomology Division was expanding and its collections were growing commensurately, through gifts and purchases, as well as through the work of CSIR(O) entomologists. In a memorandum to the Division's Chief, A.J. Nicholson, Phil Carne and his colleagues on the 'taxonomic panel' (which included the energetic Ken Key) drew attention to this:

The number of types being designated by our officers ... has been increasing rapidly and in many groups our collections are by far the most important in Australia. In addition, without any prompting from us, the Division has been selected as the logical repository for insect types by Australian institutions such as the New South Wales Division of Wood Technology and the Waite Institute [South Australia].⁶²

Not only systematists, but also ecologists and pest managers needed study series of specimens for their work, and collected actively to ensure they had them. Carne's memorandum was part of a spirited campaign to improve conditions for the entomological collections, and to stem what he perceived as a steady loss of type specimens and series to museums abroad:

The entomologist studying practically any group of insects finds that, far from being able to go to a single museum and have available for study all the

types of (even) a single genus in which he is interested, he may have to visit a large number of museums in many different parts of the world... Thus the physical problems of the taxonomist's task are enormously magnified, as also is the expense of the undertaking.⁶³

Curators of the (very permanent) Harvard Museum of Comparative Zoology responded to this public document by raising concerns about the permanency of the Australian collection, and about the working conditions for international visiting entomologists at the CSIRO Division of Entomology. If there were no guarantee of permanent facilities, library and first-class technical equipment, why should international entomologists deposit type or other specimens in Canberra?⁶⁴ Carne respected this logic, and pursued the matter with Nicholson, but progress towards a permanent or 'national' status for the collection was very slow.

During the 1950s, CSIRO's Wildlife Survey Section made preliminary efforts to begin a collection in the course of a 'survey of the status of marsupials in the state of New South Wales' in collaboration with a state agency. The one hundred or so specimens of skins and skulls it collected were sent ultimately to the Australian Museum. Francis Ratcliffe, the Officer-in-charge, made this decision because there was no facility in CSIRO for a 'planned, positive and national' policy for wildlife conservation or collections.⁶⁵ There were only sixteen mammal skins ('a few gliders, possums and rabbits') left in Canberra after the Australian Museum transfer. The section's small, well-documented bird collections, about half of which (c.200 specimens) came from Macquarie Island were sent to the National Museum of Victoria 'in the absence of a suitable National Museum in Canberra'.⁶⁶

A Systematic Botany Committee was formed at the same Adelaide meeting of ANZAAS in 1946, and it immediately began to lobby for a new Flora of Australia. George Bentham's *Flora Australiensis*, written and published in England between 1861 and 1878, was based on collections in Kew Gardens, the British Museum (Natural History) and the Jardin des Plantes, Paris. Bentham also borrowed Ferdinand von Mueller's entire collection from the Melbourne Herbarium.⁶⁷ William Hartley, CSIR's Senior (later Principal) Plant Introduction Officer, argued in 1947 that the first step in this process was a 'Commonwealth Herbarium.' Hartley himself had introduced an astonishing 30,000 strains of grasses and plant legumes to Australia, and was well aware of national taxonomic shortfalls in his own field.⁶⁸ After the reorganization of 1949, CSIRO Division of Plant Industry continued to press unsuccessfully for a National Herbarium in Canberra to bring together the collections of the divisions of Plant Industry and Land Survey, and Lindsay Pryor's Australian Forestry School 'Parks and Gardens Collection'.

Nancy Burbidge used her position as Systematic Botanist to create a 'major centre for taxonomic knowledge and research', providing identification services not only for colleagues at CSIR(O), but also for other plant taxonomists from all over Australia. Unlike those who worked in State Herbaria, she did not have a building for her collections, and relied on the Systematic Botany Committee of ANZAAS for institutional status.⁶⁹ Nevertheless, her Herbarium networks were national (and even international), and the variety of questions she confronted was very broad. The plant collections of CSIRO's Division of Plant Industry were particularly strong on pasture plants and those of the Land Research and Regional Survey Section were rich with new specimens from northern Australia (from the 1940s and 1950s), so the types of questions asked of her

were rather different from those put to staff at State herbaria. But the fact that the collections of the two parts of CSIRO were in different places was highly undesirable for taxonomic work. In 1955, Hartley wrote to Otto Frankel, Chief of the CSIRO Division of Plant Industry, recommending that they become involved with 'Proposals for an Australian Natural History Museum'.⁷⁰

Hartley, Carrick, Carne and others interested in taxonomy, decided to join forces as a 'taxonomic group' to lobby for the establishment of 'a permanent national repository for important collections of the Australian flora and fauna'.⁷¹ Although the document they prepared was 'written primarily from the point of view of the significance of the proposal to CSIRO', its underlying aim was to ensure that a greater percentage of Australian type specimens discovered in future would be deposited in Australia.⁷² The museum should be an 'active institution', which provided a 'public display' alongside 'facilities' for public lectures, 'films on Australian natural history', and 'urgently needed taxonomic research'.⁷³ The national interest was served by taxonomy because, they argued it was essential not only to 'morphological and physiological study employing a single species', but also to 'ecological, biogeographical and evolutionary studies, where the relations between many different species are involved'. Taxonomic errors and missing data had resulted in 'wasted time, money and effort' in relation to key national priorities including the control of malaria, Pink Bollworm in cotton and sheep blowflies, and in biogeographic surveys of northern Australia.⁷⁴ The solution, they believed, was already at hand:

This proposal can be made effective almost immediately if the Institute of Anatomy reverts broadly to its original function...[and became] known as the Australian Natural History Museum, under a new Act to replace the original one'.⁷⁵

The Royal Society of Canberra intervenes

Frankel did not take up the Taxonomic Group's initiative, but it was revived four years later by the Royal Society of Canberra (whose then President was none other than the persistent William Hartley). As one of the local city's premier scientific bodies (alongside the Australian Academy of Science), the Royal Society hosted a symposium in May 1959. It focused on the future of the Canberra collections of ethnology, wildlife (vertebrates), entomology, plants and mineralogy (rocks and fossils) and of the national mission for taxonomy in all its forms. National collections were scattered all over various unlikely parts of the city, lacking suitable housing, while the Institute of Anatomy's important collections were housed, but uncurated, and the Department of Health continued to use much of the building for its offices.

Many shared zoologist Robert Carrick's view that collections in Australian (state) museums were 'far from adequate'. New collections were needed because they had been 'made many years ago, before there was a full appreciation of the need for recording data about them... Much of the material is out of date and poorly documented'.⁷⁶ In the case of entomology, the best collections were in Canberra already, but these did not have the certainty of tenure of collections held by State Museums.

While the primary focus of the Royal Society symposium was the quality of collections for the use of science, scientific endeavour was also tied to education and to visitor-entertainment for the national capital. The National Capital Development Commission

was an active and well-funded body, supporting the long-awaited moves of many Commonwealth department offices from Melbourne. Office-buildings and suburban growth around the Civic area was evident. The question of a national museum for the city's existing and future natural history collections attracted fresh interest: 'Visitors to Canberra often comment on the lack of [a Natural History Museum, Botanic Gardens and Zoological Gardens]'.⁷⁷ School-aged children were a significant group in the late 1950s explosion in Canberra's population, an explosion driven by the transfers of their fathers' departments from Melbourne.⁷⁸ 'Education' was a natural selling point for all three institutions.

In a sense the symposium came too late for the museum to capitalize on its potential synergies with a zoo and botanic gardens. The Canberra (later Australian National) Botanic Garden had acquired its own momentum. The boundaries for the gardens were established and grazing leaseholders evicted under the direction of Dr Erwin Gauba, botanist for the Department of Interior (who had been appointed in 1950). In 1958, Lindsay Pryor moved to become Professor of Botany at the Canberra University College (from 1960, the Australian National University). David Shoobridge was appointed his successor as Director of Parks and Gardens. By 1960, the gardens had a Botanist (Betty Phillips) and a commitment to develop the gardens as a showcase of indigenous plants. The Herbarium collection at the Gardens, although much smaller than the CSIRO collections, had its own building by 1966.⁷⁹ Questions about the botanical research collections at Plant Industry and the (now Division of) Land Research and Regional Survey were no longer locked into the notions of 'education and entertainment' necessary to a museum. The display element was captured by the Botanic Gardens.

The 'zoo question' was similarly separated from the zoological collections issue, when the proposal to develop 'a pocket Kruger' in the Upper Tidbinbilla Valley met the approval of the National Capital Development Commission in January 1960. The Tidbinbilla Reserve provided public interest, education and entertainment, and also offered 'outdoor facilities for studying Australian animals by biology departments of universities and CSIRO'.⁸⁰ Meanwhile, the Health Department continued to occupy the Institute of Anatomy building, and so the 'simple solution' of reclaiming that building as a museum for all national natural history collections was not as straightforward as it first appeared.

Botanical collections and the *Flora of Australia*

The 1960s saw continued discussions about a new *Flora of Australia*. Hansjoerg Eichler, Keeper in the State Herbarium of South Australia, proposed in 1957 that his staff should begin Australia-wide revisions that could ultimately contribute to this. He had arrived from Germany only two years earlier, and was unfamiliar with the traditional Australian system whereby each state confined its botanical work to its state borders. J.G. Wood, Professor of Botany at the University of Adelaide, better known for his work on the ecology of arid zone plants than for their taxonomy, supported Eichler, and took the matter to ANZAAS in 1958.⁸¹ At ANZAAS, there was general support for a new *Flora* and its 'Flora of Australia Committee' recommended the publication of a new monographic work. The Chairman, S.T. Blake, observed that it would require substantial new field work, and major new research effort, not just a summary of existing published

material.⁸² The Menzies government referred the ANZAAS report to the Australian Academy of Science, who in turn referred it to the Fauna and Flora Committee. Meanwhile Nancy Burbidge, Curator of the CSIRO Plant Industry's Herbarium *Australiense*, pressed on with her research, publishing her *Dictionary of Plant Genera*, and many papers on phytogeography, and the plant groups *Nicotiana*, *Sesbania* and *Helichrysum* (between 1955 and 1970).⁸³ She was steadily creating some of the research building blocks for the *Flora*, despite the inertia on its institutional arrangements. It was finally the Academy that took the running in 1971, with the creation of a formal Standing Committee for a Flora of Australia, chaired by David G. Catcheside. Academy funding from Sir Maurice Mawby enabled Nancy Burbidge to be seconded in 1973 to co-ordinate the work of taxonomists from every state, and to develop research strategies on the much-delayed *Flora*.⁸⁴ Eichler from South Australia took over the curation of the 'Herbarium *Australiense*', which became a formally gazetted institution in 1975 (renamed the Australian National Herbarium in 1984).⁸⁵

Australian natural history and the rest of the world

Until the post-war period, Australian biology was a science overwhelmed by the demands to be useful. CSIR's early divisions of entomology and botany were, in accordance with the aims of the Empire Marketing Board, which provided half their establishment costs, both prefaced by the adjective 'economic'.⁸⁶ The drive to support the agricultural and pastoral industries of the nation shaped research in many universities, and provided the sole *raison d'être* for research in institutions like South Australia's Waite Institute. The curiosities of Australian natural history were of interest to taxonomists, both local and international, but there were very few such people, and their profession was generally confined to State Museums. Collections, particularly in the 1920s–1950s, were more often made in the service of 'useful science', than because of curiosity. New developments in agriculture demanded identification and differentiation of native insect pests, and drove major collecting expeditions, all over Australia. Studies of the ecology of a series of native insect pests were regarded an effective way to begin to control them, so it was often ecologists who made new collections, and sometimes their methods lacked the rigour required by taxonomy.⁸⁷ During this period State Museums sponsored some collecting expeditions, but not many, because of severe funding restraints. Thus many of the fastest-growing collections did not focus on 'interesting' specimens that might entertain a museum visitor.⁸⁸

There was, however, a growing interest in Australian natural history coming from another quarter. The older science of taxonomy — defined as 'the theory and practice of describing, naming and classifying different organisms' — was being enriched by the newer science of systematics, or the 'study of the diversity of, and relationships between, different organisms'.⁸⁹ Most museums still use 'taxonomist' and 'systematist' interchangeably, but the distinction was important in the 1950s when the shift first occurred. Instead of a natural history collection being about names and classificatory systems, it was now about relationships, origins, and diversity. Australian natural history was now important to the rest of the world, not just for its curiosity value, but also for its potential to solve international mysteries and to fill gaps in knowledge. Supported by Fulbright Scholarships and similar schemes, a number of North Americans and some Europeans came to Australia seeking new specimens for international

collections. Australia's tertiary faunal record came under the scrutiny of Ruben Arthur Stirton, professor of palaeontology at the University of California, and his graduate student Richard H. Tedford, who both won Fulbright Scholarships in 1953, enabling them to spend nine months in and around Lake Eyre. With the support of Paul F. Lawson of the South Australian Museum, they discovered Lake Palankarina, east of Lake Eyre, which became the focus of further fieldwork. The establishment of a Tertiary faunal sequence in Australia in the 1960s provided a key to further fossil discoveries, and could never have been achieved without these numerous, largely American-funded expeditions.⁹⁰

In 1959 Ernst Mayr from the Agassiz Museum of Comparative Zoology at Harvard University visited Australia to collect ideas, and to look at birds in the field and in collections for his major revision of the taxonomy of the birds of Oceania. His interest in the behaviour of living birds as a factor in their classification surprised many who had expected that a taxonomist would focus just on specimens.⁹¹ His three-month visit was influential beyond the ornithological community. His ideas about the diversity of life fuelled new concerns about 'discovering what we don't know' about Australian natural history, 'before it's too late'. Ian Common, for example, used Mayr's international perspective, and his estimate of a total of 1.25 million animal species, in his talk at the Royal Society of Canberra Symposium. Common declared there were notionally 850,000 insects in the world, on the basis of known proportions of insects to other fauna. Only 50,000 insects had been described for Australia, so logically many Australian insects remained undescribed, and these 'must form an integral part of the classification of world insects'.⁹²

Perhaps the most important new ideas for Australia in 1950s systematic thinking were about species origins, particularly radiations out of the southern as well as the northern hemisphere. Evolutionary biology was revived in the 1960s by the discovery of plate tectonics and sea-floor spreading, which provided the long-missing mechanism for a theory of 'continental drift', a theory around since 1912. Interest in continental drift, the idea that the continents shifted in relation to each other, had kindled, but stalled due to a lack of a mechanism to explain the movement of continents.⁹³ The 1960s saw a growing interest in southern hemisphere 'radiations', or animals and plants with their evolutionary origins in the ancient Gondwanan land forms. By 1970, Ernst Mayr declared that: 'Continental drift, a geological theory that was rather unpopular from the 1930s to the 1950s is now highly fashionable'.⁹⁴ Southern radiations demanded new studies, and justified northern hemisphere investment in southern research.⁹⁵

Following his 1959 visit, Mayr wrote a report advocating a new natural history museum that could meet the need 'for a more intensive exploration and systematic analysis of the Australian fauna'. In the face of ongoing habitat destruction, he saw the central functions of such a museum included a biological survey and the co-ordination of zoological monographs covering the Australian fauna.⁹⁶ His report at first fell on deaf administrative ears, but later shaped some of the scientific discussion and offered it international legitimacy.⁹⁷

Biological Surveys, National Collections and the Australian Academy of Science – the 1960s

Biological surveys were not a new idea in the 1960s. Nor were they confined to plants, although soils and vegetation studies often preceded faunal work. Since its inception in 1888, the Australasian Association for the Advancement of Science (later ANZAAS) had heard many lectures advocating the urgent need to survey Australian fauna, and to build collections for scientific reference ‘before it was too late’. The question was who would take on this responsibility, one that was ‘too great for individual effort, too long for individual life’, as Charles Hedley declared to AAAS in 1909 in Brisbane. He advocated that a special institution should be responsible for a biological survey: ‘a museum, a university or a fisheries bureau.’⁹⁸ In 1921, Froggatt advocated a ‘Bureau of Biological Survey or Bureau of Economic Zoology’ and Baldwin Spencer urged the co-operative efforts of the scientific and natural history societies of all states in an endeavour to investigate the fauna and flora of Australia.⁹⁹ In 1932, the Director of the Australian Museum suggested to the Premier of New South Wales that ‘the CSIR Division of Economic Entomology might be widened to include a biological survey’.¹⁰⁰ Francis Ratcliffe, from the beginning of his time as Officer-in-charge of the CSIRO Wildlife Survey Section in 1949, urged biological surveys, but quickly realized that his own section did not have sufficient resources for the full national-scale survey that was needed.¹⁰¹

A.J. Nicholson summarized the taxonomic group’s *Proposal for an Australian Natural History Museum* in a letter to Mark (later Sir Mark) Oliphant, President of the Australian Academy of Science, in November 1955. He urged that the Zoological Museum agreement from 1924 be reconsidered, and that there be renewed consideration given to the idea of a national museum for the survey and taxonomy of Australian plants and animals.¹⁰² Oliphant promptly forwarded the suggestion to Prime Minister Menzies, who expressed concern that such a survey might detract from the ‘museum work’ of the Institute, which attracted 40,000 visitors annually.¹⁰³ Oliphant tried again:

Council of the Academy is impressed with the need to make adequate collections before the future development of Australia and its dependencies renders it too late to secure the necessary material.¹⁰⁴

At this point the vociferous John Evans, Director of the Australian Museum, intervened and recommended that State Museums be subsidized out of Commonwealth grants ‘enabling them to increase their scientific staff and sponsor collecting expeditions.’¹⁰⁵ However, his idea of a ‘Commonwealth Unit of Systematic Zoology’ at the Australian Museum in Sydney muddied the waters and prolonged delay in Canberra. His proposal was eventually dismissed by the council of the Academy, but the delay introduced new complications.¹⁰⁶

The issue of ‘conservation and national parks’, was now a large and pressing concern, and questions of ‘scientific survey’ were clearly related to it.¹⁰⁷ There was also a building concern, voiced in a letter in 1960 from zoologist W.P. Rogers to Frank Fenner, that the Australian Institute of Anatomy could become ‘a centre for research on native Australian mammals.’ Rogers commented, ‘We still know very little about even the general history of marsupials and monotremes.’¹⁰⁸

The Australian Academy of Science was in an awkward position. In order to provide advice to the government of the day, it had to be seen to be independent, but Evans’ noisy

protests served to compromise the Academy's position, by situating it as a participant in this particular initiative. Evans' stinging letter to Sydney Sunderland, the Academy's Secretary (Biological Sciences), declared:

Just as the CSIRO has built an empire with Commonwealth funds, undoubtedly to some extent at the expense of University progress, so it may seem that the Academy may follow suit in regard to a Natural History Museum.¹⁰⁹

Fenner replied cautiously to Rogers, explaining that research into Australian mammalogy could be supported through various developments including: a new Research School of Biological Sciences at the Australian National University, a National Museum in Canberra, Biological Field Stations and Faunal Reserves. He saw all these developments as interdependent.¹¹⁰ Fenner's immediate response was to establish a new sub-Committee on the Museum of Australian Biology, chaired by Professor Michael White of the University of Melbourne. Nicholson's successor as Chief of the Division of Entomology, Douglas Waterhouse, was also on this committee.¹¹¹

In 1962 the Academy sent Menzies a proposal for 'a Museum of Australian Biology'. The Academy sub-committee, chaired by Michael White, identified two key tasks for the new museum: 'a biological survey of Australia and its territories' and 'a comprehensive multi-volume *Flora of Australia*'.¹¹² The Museum of Australian Biology thus steered carefully away from the 'education and entertainment' functions that could potentially duplicate the missions of State Museums.

CSIRO and the Academy were not alone in expressing concern that work towards exhibitions for entertainment and education could interfere with systematic research. Museum professionals agreed. R.P. Stone, a member of the Museums Association of Australia who was 'actively engaged in Museum work at the Institute of Anatomy' in 1959 distinguished two sorts of museums: 'one for housing study collections of type specimens and the other to carry out the general educational work of museums'.¹¹³ The question remained: how could national collections meet both needs? State museums were under-funded for undertaking systematic and taxonomic research. All parties regarded 'research sciences' as crucial to making collections valuable, and all agreed that in managing collections, priority should be given to long-term future scientific needs, rather than public exhibitions. Renewed efforts in surveying and collecting were also widely supported, though not by the Prime Minister, who took more than three years to respond negatively to the Academy's 1962 proposal.¹¹⁴

The wide-ranging consensus in support of a survey, if not a museum, was taken up by the Academy in 1968. The Fauna and Flora Committee developed another, modified proposal to the government, to establish a 'Biological Survey of Australia', arguing that:

It has never been claimed... by any responsible body or individual, that the need for developments along these lines did not exist, and we believe that the time which has elapsed since our former submission has only made [both the survey and the *Flora*] more urgent.¹¹⁵

This document focused on national collections for science, not museums.

In 1965 a group of distinguished scientists, many of them Fellows of the Academy, put forward a complementary proposal for an innovative Biological Centre in Canberra to entertain the general public:

Its aims and functions would be much wider than those of either a conventional zoo or a museum of natural history, ... and it would eventually become one of the most important cultural institutions in the capital city.¹¹⁶

It was envisaged as a *cultural*, not a scientific, institution, which would showcase living animals in natural environments in order to increase 'biological awareness and biological knowledge in persons in all walks of life.'¹¹⁷ It was to be a centre for alternative, exciting and imaginative entertainment, not a place where type specimens or research collections would be on display.

Senior scientists were sympathetic to the 'education and entertainment' dimensions of a museum in the national capital, but wanted these separated from scientific functions. Such arguments were behind the CSIRO Executive's reluctance to make their research collections 'permanent' in the 1950s and early 1960s. Managers saw collections as 'museum-type' activities, not sufficiently close to core business (or 'real science'). The taxonomists fought back, declaring at every opportunity the crucial role of good collections and taxonomic knowledge in ecology, physiology and pest-management. However, it took a new (and taxonomically enthusiastic) Chief, Doug Waterhouse, to fight successfully for permanence of the national collections within CSIRO. On 8 March 1962, soon after he took over as Chief of the Division of Entomology, the Australian National Insect Collection was gazetted as a permanent institution.¹¹⁸

A national museum is not the same thing as a national collection, and there were increasingly good reasons to maintain the distinction. A systematic collection is above all, exhaustive, complete and valued for its scientific integrity. A museum must entertain and educate through stimulating (not exhausting) curiosity. It may communicate science, but is not necessarily the place where cutting-edge science actually takes place. The distinction was first made by scientific systematists, defending their collections against dispersal, but it became a view increasingly shared by museum professionals. In the mid-1970s, one group, after a tour of museums in a number of countries, commented wryly that:

In most museums of the world a curator [i.e. a collection manager] is responsible for the display. Without wishing to be uncharitable, we consider that the dreariness and intellectual dullness of many displays can be traced to the decisions of [taxonomic] scientists on what is an appropriate display.¹¹⁹

The Academy's Fauna and Flora Committee also distinguished between entertainment and science, in a bid to press for the long-overdue biological survey — a collecting mission with scientific intent. Its revised 1968 *Proposal to Establish a Biological Survey of Australia* had elements in common with the earlier recommendation for the Museum of Australian Biology, but shrewdly separated the (scientific) survey from a national museum (of entertainment).¹²⁰ Australia's dearth of systematic research would be best and most efficiently served by a dedicated body tackling this task, not one distracted by demands for public exhibition.

This was ultimately the successful model, with an Interim Council for the Australian Biological Resources Study commencing in 1973, in line with recommendations from the 1972 House of Representatives Committee on Wildlife Conservation.¹²¹ From 1978 the Australian Biological Resources Study was led by David Ride, a former Director of the Western Australian Museum. Ride had been influential in mapping out a truce between State and federal interests in collection management through the Academy's 1960s Fauna

and Flora Committee. In parallel, Frank Fenner, the Academy's Secretary (Biological Sciences) successfully lobbied the Vice-Chancellor of the Australian National University for the establishment of a Research School of Biological Sciences (RSBS). Lobbying began in 1961, and, although delayed by the Vice-Chancellor's desire that a Research School of Chemistry be established first (in 1964), the RSBS was founded in 1967, with David Catcheside as its first director.¹²² Fenner reflected that the Academy had achieved several major successes: the Research School, the Australian Biological Resources Survey, and the *Flora* (which it had carried through its own funding from 1973–6). It could not fight for a museum as well.¹²³

Exporting insects — Regulation 13A divides the entomological community

The Museum was not the only 'tangential issue' linked to national collections that absorbed much of the time and energy of taxonomists. The question about what should happen to type specimens and series, especially insects, refused to go away. The issues raised by the taxonomic group in the 1950s remained unresolved, and Ken Key, one of the original members was articulate in his concern that new insects should be described in Australia for Australians, and that the holotypes (or series) should remain in the country. When their views were canvassed in 1963, most professional entomologists agreed that international insect exchanges should be covered by a 'gentleman's agreement' rather than formal legislation.¹²⁴

In 1965, the Trustees of the British Museum (Natural History), which held one of the largest overseas collections of Australian insects, declared support for the principle of lodging holotypes of Australian material (including fauna other than insects) in an Australian institution.¹²⁵ This principle ran into difficulties by 1968, as further concerns arose about what to do with material already in the collections. The British Museum was also in the middle of five expensive Harold Hall expeditions to collect Australian birds, to replace earlier collections sold by Lord Rothschild.¹²⁶ Future holotype material was fine, but present and past material that became 'holotype' (as taxonomic research progressed) was more problematic. In 1969, 'on the advice of the Treasury Solicitor', the British Museum's Trustees declared that their Act of Parliament prevented them giving away any specimens other than duplicates.¹²⁷

The same year, Waterhouse and Key raised their concerns through the Conference of Australian Museum Directors (CAMD). There was still reluctance amongst Museum Directors and the wider entomological community to endorse any legislative or bureaucratic solution that might jeopardize the goodwill of international entomologists. The Australian systematists needed all the research help they could get, and the free exchange of specimens was essential to international taxonomic decision-making, and therefore advantageous to the Australian national interest. The deadlock continued, at least partly because the scientific community was divided. Ride, who was knowledgeable about export regulations in both Britain and in Australia, suggested that export control might provide a solution. He and Waterhouse presented some ideas along these lines at the 1970 meeting of CAMD, and then pressed on, lodging a formal case for legislation to the Department of Customs on 15 August 1972. Following the change of federal government later that year, 'Regulation 13A' was gazetted and became law on 19 July 1973. This prohibited the export from Australia of 'live or dead insects (including ticks

and spiders)' ... 'except with the approval of the Minister of Science or a person authorized by him'. Initially the only 'authorized person' was Waterhouse himself.¹²⁸ A state museum entomologist, Geoff Monteith, led a case against legislative control and the unnecessary bureaucratic burden for genuine scientific workers it occasioned. He was keen to make the position that he was

not [presenting] a case against the deposition of holotypes ... in Australian institutions, which is ... a highly desirable objective ... [but] rather ... a case against inflexible blanket legislation as the best means to achieve this objective.¹²⁹

He made the point that Australian taxonomists depended on the support of overseas specialists and that impediments to their work must therefore be removed. The question festered on throughout the 1970s, with the Australian Entomological Society conducting several surveys that highlighted a high level of dissatisfaction about the legislation amongst the professional community. John Evans emerged from retirement as late as 1979 to object to the legislation in a vitriolic and rather personal paper in *Search*. He felt that Waterhouse and Ride were alone in promulgating the 'Canberra' solution, and that they had ridden roughshod over the democratic interests of 'an overwhelming majority opinion of working scientists' whose views on 'the free exchange of scientific information' had been ignored.¹³⁰ In fact the differences of opinion that had cost the entomological community much time and angst were being resolved, even as Evans' paper went to press. Waterhouse and the staff of the Australian National Insect Collection met in July 1979 and 'tidied up' the Guidelines, which were approved and issued at the end of that year.¹³¹ At the 1982 annual meeting of the Entomological Society of Australia, the entomological community 'buried its hatchet', in the words of Waterhouse's biographers, with the formal opening of the D. F. Waterhouse Laboratory at CSIRO.¹³² Within two years Regulation 13A was rescinded, superseded by the 1984 *Wildlife Protection Act* and the new CITES treaty. The principle of retaining holotypes in Australia was protected by the new legislation. The matter, however, proved a distraction for taxonomists, both entomologists and other collection managers, during a critical time in the development of ideas about a national museum.

Collections expand to include historic and cultural materials

On 10 April 1974 the government announced that a new committee had been appointed to review Australian museums and national collections. Businessman, Peter Pigott, was called on to chair the Committee of Inquiry on Museums and National Collections.¹³³ Its primary task was

to advise on the scope, objectives and functions of an Australia Institute to develop, co-ordinate and foster collections, research and displays of historical, cultural and scientific material of national significance, giving particular attention to its relationship with the Government and other institutions.¹³⁴

The scope of this far-reaching enquiry was shaped by other reformist ventures, government and otherwise that were happening in parallel, in history and heritage and in Aboriginal studies.

History was becoming more concerned with its material aspects, and with what should constitute the national 'estate'. Nationalism was a spiritual and emotional sentiment,

often associated with war, but groups such as the Fellowship of First Fleeters urged not just flags, bands and anthem competitions for Australia Day celebrations, but by the 1960s also national heritage – including the conservation of historic buildings.¹³⁵ The idea that buildings and historical artefacts were of national concern gathered pace. New notions of ‘cultural heritage’ ensured that different sorts of objects were collected and nationalized. National collections even extended to places, which could be valued for ‘natural’ or ‘cultural’ significance. The report establishing the Australian Heritage Commission was published just as the Pigott Committee was undertaking its inquiry. The Museums group was careful to distinguish between ‘cultural property’ (collections) and the ‘the national estate’ (places).¹³⁶ The scope of the ‘national estate’, because of its timing, shaped what might constitute a ‘national collection’. The Pigott Committee ‘experts’ included two historians, Geoff Blainey and John Mulvaney (who was also an archaeologist and a Council member of the Australian Institute for Aboriginal Studies) alongside scientists Waterhouse, Bill Boswell and Frank Talbot.¹³⁷ Just fifteen years earlier, the inquiry into national collections had been the initiative of the Royal Society of Canberra, a scientific institution, and humanities experts were not part of that discussion. In 1975, the ‘national estate’ was defined as:

those places, being components of the natural environment of Australia or the cultural environment of Australia, that have aesthetic, historic, scientific or social significance or other special value for future generations as well as for the present community.¹³⁸

The Pigott Committee reviewed all the existing statutory ‘official collections’, including those of the Australian War Memorial, the National Gallery and the National Library. New national collecting ventures in historical archaeology were also under discussion in December 1974. The Interim Committee of the National Estate approached the department of Prehistory at the Australian National University to convene a conference, which led to a formal Project Coordination Committee on Historical Archaeology.¹³⁹ This was part of a broad reappraisal of Aboriginal material culture, part of a renewal of interest in Aboriginality informed by the social movements of the late 1960s. The Pigott Committee was reporting in 1975, the year Gough Whitlam restored the famous handful of sand to Vincent Lingiari, with the words ‘I put into your hands part of the earth itself as a sign that this land will be the possession of you and your children forever’.¹⁴⁰ In this era Indigenous studies moved from studying Aboriginal people as ‘scientific subjects’ to ‘subjective voices’. Stone tool collections, gathered in very different eras, were no longer understood as taxonomic assemblages, but rather as cultural artefacts. Aborigines were no longer ‘science’ but ‘humanities’.

Cultural and political sensitivities about Aboriginal people were emerging belatedly, and, after years of silence, finding a voice. Such rethinking raised new questions for the ethnological collections held in the basement of the Institute of Anatomy. Human remains, especially those of people recently passed away, such as MacKenzie had urged for collections in the 1920s and 30s, seemed suddenly to be not just inappropriate, but embarrassing to national collections.¹⁴¹

The Pigott Committee commenced its work in May 1974. Research into comparable international museums was complemented by inspections of the major repositories and museums in all states and the Australian Capital Territory.¹⁴² It found the Australian

collections to be generally in a woeful state of conservation. Echoing the Royal Society of Canberra's symposium of 1959, the report declared:

In contrast [to the spacious display areas of the main Federal and State Museums] the storage areas of museums, hidden from sight are usually crowded. The constant search for storage space means that places of last resort are increasingly utilised as the store rooms for valuable materials.¹⁴³

The recommendation to raise standards to international levels to alleviate the 'crisis' in conservation was, in the opinion of Mulvaney, one of the Pigott Committee's most important findings:

We recommend the creation of a Cultural Materials Conservation Institute to study and disseminate ways of preventing deterioration of fragile and perishable museum objects, especially under Australian climatic and other conditions.¹⁴⁴

The Committee used pictures of the poor storage conditions of War Memorial material to illustrate their recommendations.¹⁴⁵ By 1979, the War Memorial had proper conservation laboratories established at Mitchell, and the Canberra College of Advanced Education (now the University of Canberra) had introduced a research-level course in material conservation.¹⁴⁶

The Committee also used its broad terms of reference to explore the possibilities for other new areas of national collections. For example, F. J. Waters, the union representative on the Committee, alerted other members to the existence of unofficial Australian Post Office collections already in government hands, spread across different centres. Together these collections documented 'the development of national post and telecommunications services.'¹⁴⁷

In the mid-1970s, the rise of 'local and living-history museums' could hardly be ignored. While the Committee welcomed this trend, it indicated that the government should support such initiatives only where the community or organization had the capacity to maintain (and build) such collections 'of historic significance' after establishment.¹⁴⁸ The Committee recommended 'networks' for linking regional efforts, and an Australian Museums Commission to take overall responsibility for co-ordinating the conservation and collection work in all federal government museums, alongside State and municipal museums. This important recommendation for a body that could set national standards for conservation and preservation of collections was never taken up. Its other function as a place for the interchange of ideas between museum professionals from different institutions was picked up to some extent by the professional organization, Museums Australia and its state and territory chapters.

Natural Science and the National Museum of History

The Pigott Committee was unanimous on what should happen to most collections. It presented united reports on the government's art collections, on its historical material and on the collections held at the Australian Institute of Anatomy. It was the 'Collections in Natural Science' that aroused division within the Committee. The report presented a one-page 'Majority View' alongside a longer (two-page) 'Minority View on the Custody of the Natural Science Collections'.¹⁴⁹ The sole expert dissenter was Waterhouse, who persuaded the Executive Member, E. E. Payne (whose task was to draft the report) to join him in a recommendation that

the Australian Government-owned collections of natural science in the A.C.T. should not be placed administratively under the control and care of the museum of national history, and that the recommendation on these matters should be left to the Interim Council of the Australian Biological Resources Study.¹⁵⁰

The Chairman of that Interim Council was Waterhouse himself. A small but significant collateral effect of this decision was that it effectively redefined the MacKenzie collections as 'not natural science'. Thereafter, the 'wet specimens' were treated as separate from other zoological collections, and lumped with the co-located ethnological collections, which had been stored in the basement of the Institute for want of other space.

Murray Upton in his history of the Australian National Insect Collection has suggested that 'within weeks of its publication' the minority view expressed by Waterhouse and Payne 'gained majority support', but unfortunately just too late to have the report changed.¹⁵¹ This view was not supported by Mulvaney, one of the members of the Committee of Inquiry, who was surprised to find a minority view in the published report, after the prolonged discussions of the majority view.¹⁵² Mulvaney and the majority of members of the Pigott Committee felt that there would have been significant benefits in having all the national collections under a single authority (but not necessarily one roof). Upton's summary suggests that Waterhouse's views found some support in his immediate scientific community, but there was not universal support for separating the institutional functions of a museum from the natural science collections. Indeed the Pigott Committee's thrust was for an emphasis on the relations between science and culture, not a institution for taxonomy, and it considered that the collections could remain in the care of a museum, without jeopardizing taxonomic interests. By contrast, the CSIRO Taxonomy Group heard this was undesirable. Don Colless's record of a 1975 meeting where David Ride (now a member of the Interim Council of the ABRS) was a key speaker, noted:

a National Museum is quite likely to be established, and would very likely include a Division of Natural History, [which] would provide a threat to the efficient conduct of our kind of research.¹⁵³

In December 1975, the Interim Council submitted a report to the government recommending the establishment of a council for the study of Australian flora and fauna. The change of government in December 1975 postponed action. The new Prime Minister, Malcolm Fraser, commissioned an inquiry into CSIRO by A. J. Birch, Sir Cecil Looker and R. T. Madigan. The Birch Report commented unfavourably on the extent of Australian biological survey work, and signalled the importance of 'large collections' and a computerized data bank 'to permit both national and international use in the identification and classification of organisms'. The report also recommended a body that could 'rationalize' the roles of CSIRO, the Australian National Parks and Wildlife Service, the State Museums and the fledgling Australian Biological Resources Study (ABRS). Nothing could happen on this until the situation for ABRS was clarified. Late in 1978, the government appointed an Advisory Committee, not a statutory body, but a year later, in December 1979, the ABRS was moved to the newly created Bureau of Flora and Fauna in the Department of Science and the Environment, under the directorship of Ride.¹⁵⁴

The proposed new museum, 'A National Museum of History' waited in the wings while all this was sorted out. Finally, in 1980, the *National Museum of Australia Act* was passed, enabling the Museum to 'develop and maintain a national collection of historical material'.¹⁵⁵ The museum's research focus was to be on 'matters pertaining to Australian history'.¹⁵⁶ This was a bland simplification of the Pigott Committee's recommendations, which had actually recommended that

the theme of the Museum be the history of man and nature in this continent, their linked roles and their interactions. We suggest that to divorce man from nature in the new museum would be to perpetuate a schism which the nineteenth century, in the interests of science, did much to foster.¹⁵⁷

The ABRs had established a prior need for the natural science collections, and a preference for maintaining them through CSIRO, before the *Act* was passed.¹⁵⁸ The timing and wording of the Museum legislation effectively drove natural science collections to places where they would be used 'in the interests of science', and away from the natural and cultural intersections suggested by the Pigott Committee. The natural science collections never came to the institution whose brief was to overcome the divide between the Australian people and their environment. The collections were, however, maintained during the ensuing long years when there was little money in the museum for collections maintenance and seemingly no prospect of a building, either.¹⁵⁹ The relevant divisions of CSIRO greatly assisted in the exhibitions that finally appeared in 2001, by giving advice and loans from the natural science collections, but the fact that they were managed elsewhere, and for different purposes, undoubtedly led to the under-representation of natural science in the 'National Museum of History.'

1991 Conference on the state of the National Biological Collections

In 1979, CSIRO was regarded as the best institution to organize national collections of wildlife, entomology and plants, but even there, underfunding was a problem for collections and their management. In 1991, a decade before the National Museum was built, and some twelve years after the decision to leave the natural science collections with CSIRO, Hugh Tyndale-Biscoe, a senior academic mammalogist, convened a conference to raise the consciousness of government to the poor state of the national biological collections.¹⁶⁰ In 1968, the Academy had put the proposal for a National Biological Survey as 'essential background support for the conservation activities of National Parks Services'.¹⁶¹ The idea of 'conservation' had widened by the 1990s to embrace biodiversity and many internationally significant treaties, not just reserves management. The phrase 'ecologically sustainable development' was on politicians' lips (including those of the Environment Minister, Ros Kelly, who opened the conference). National biological collections no longer simply serviced the nation; they were also essential to 'the global significance of Australia's biodiversity'.¹⁶² The Conference commended the work of the ABRs, but in an echo of each of the earlier reports, was highly critical of 'the facilities for permanent storage in some collections'.¹⁶³ It also expressed concern about the 'rapidly diminishing expertise in taxonomy and systematics in the universities', where new experts were trained. There was still a need for co-ordination, even more than before, with growing understandings of biodiversity. A formal network was needed to meet new demand, but experts had a hard task trying to co-ordinate as systematics intersected with increasing numbers of fields. By the 1990s,

traditional museum roles left no spare capacity to deal with public education and exhibitions, to communicate the links between biodiversity and systematics in accessible ways.

Science and the National Museum of Australia

In 2002, Keith Windschuttle in a scathing commentary on the National Museum of Australia, implied that ‘without science’ the museum was lacking purpose. ‘Good’ (nineteenth century) museums did not ‘foster nationalism, but ... further[ed] the goal of collecting and exhibiting for scientific research’.¹⁶⁴ At the heart of his criticism lay the view that the National Museum of Australia had omitted science for reasons of political correctness.

There are and have always been national museums ‘without science’. When the South Kensington Museum of Natural History was built in 1880, the British Museum at Bloomsbury lost most of its ‘scientific collections’ (apart from the anthropological and ethnological ones in the Museum of Mankind). It remained (and still remains) the British Museum (with a distinguished history dating back to 1753). Was Windschuttle perhaps distinguishing between ‘national’ and other museums? Science is very closely tied to nation in Australia, and many scientists would welcome closer ties between science and nation. But the implied equivalence of turn-of-the-millennium science and natural history collections presented in museums in the style of the nineteenth century is not something that would find support in scientific, historical or political circles.

The National Museum of Australia benefited from the advice and suggestions of many scientists for over three-quarters of a century before it opened at Acton Peninsula. While scientifically-qualified curators and designers in the exhibition teams were in the minority, there were some. The scientific history of the institution, and of other important national institutions such as CSIRO, is clearly manifested in the exhibitions and in the National Historic Collection.

Science is present, not absent. It is not packaged in taxonomic showcases, rather as ideas and principles that are the result of human endeavour. The understandings of people in the environment and science in society in the *Tangled Destinies* gallery, for example, are strong responses to the Pigott Committee’s original challenge. *The Gallery of Aboriginal Australia* also celebrates the connections between peoples and environments, as Indigenous perspectives demand such intersections. The Museum in fact mirrors current efforts in most major scientific institutions to foster interdisciplinarity and the communication of scientific ideas. ‘Public science’ is now integral to science itself, as job advertisements for senior executives in national science organizations (such as Cooperative Research Centres, Centres of Excellence, University science faculties and CSIRO Divisions) testify. As President of the Royal Society, London, and former chief scientific adviser to the British government, Lord (Robert) commented recently:

we need more explicit and open debates about the world we wish to create from the opportunities scientists and engineers are offering us. These are debates about values, beliefs, feelings even.¹⁶⁵

Science and society are mutually responsive at the highest levels of contemporary science. Windschuttle seems alone in advocating a brand new museum that promotes nineteenth century style science (without society). Museologist Linda Young takes a positive view of the absence of cabinets of curiosity: ‘The NMA is striking for being

unburdened by nineteenth century collections', she comments.¹⁶⁶ But whether you like or hate this, a museum is, by definition, fundamentally shaped by its objects, as well as its philosophies, and the history of the national collections is a key factor in what is available to be exhibited.

The National Museum of Australia has stuck remarkably closely to the prescient brief of the Pigott Committee:

The museum, where appropriate, should display controversial issues. In our view, too many museums concentrate on certainty and dogma thereby forsaking the function of stimulating legitimate doubt and thoughtful discussion.¹⁶⁷

'Certainty and dogma' are no longer part of science, either in practice or in theory. Nor do they enhance education or entertainment. As this paper has argued, this museum would probably never have been built without its history of science, and its controversy.

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¹ Letter to R. P. Stone 1 June 1959, Royal Society of Canberra (RSC) collection, Box 60/7, Australian Academy of Science Archives.

² 1827 or 1829, depending on your point of view – as discussed in Ronald Strahan, *Rare and Curious Specimens: An illustrated history of the Australian Museum 1827-1979*, Sydney: Australian Museum, 1979, pp 7-14.

³ Carolyn Rasmussen (together with 46 specialist contributors), *A Museum for the People: A history of Museum Victoria and its predecessor institutions, 1854-2000*. Carlton North, Victoria: Scribe Publications with Museum Victoria, 2001. The Melbourne Museum still has an 'Australia Gallery'. See review of this by Kate Darian-Smith in *Australian Historical Studies*, Vol. 117, 2001, pp351-3.

⁴ Ian McShane, 'Building a National Museum of Australia: A History', *Public History Review*, Vol. 7, 1998, pp. 75-88, especially pp 76-8.

⁵ Arthur T. Woodward, 'A Plea for a National Museum', in Library Association of Australasia, *Transactions and Proceedings of the Third General Meeting*, Melbourne: McCarron, Bird and Co., 1902, 93-6, quote p. 93.

⁶ According to Section 6.1(a) of the *National Museum of Australia Act 1980*. It is defined as all historical material held when *Statute Law (Miscellaneous Provisions) Act (No. 2) 1985* received Royal Assent (Section 3) and, according to Section 8, includes specimens and animals that are the property of the Commonwealth by virtue of the schedules attached to the *Zoological Museum Agreement Act 1924* and the *Australian Institute of Anatomy Agreement Act 1931*.

⁷ See for example, Keith Windschuttle, 'How not to run a museum: People's history at the postmodern museum', *Quadrant*, Vol 15(9), September 2001, pp 11-19, of which there is more discussion below.

⁸ Tom Griffiths, *Hunters and Collectors: The Antiquarian Imagination in Australia*, Cambridge: Cambridge University Press, 1996, especially pp 9-27.

⁹ All State Museums have evolved into very different organizations since foundation, but their founding dates are as follows (information from respective web-sites, accessed 29 July 2002):

Australian Museum, Sydney 1827; (National) Museum of Victoria 1854; Queensland Museum 1861; Tasmanian Museum and Art Gallery (Hobart) 1862; South Australian Museum 1862; Queen Victoria Museum and Art Gallery Launceston 1891 (founded on collections of the Launceston Mechanics Institute, 1840s); Western Australian Museum (Perth Museum), 1891. At the time of Federation, the Northern Territory was part of South Australia. The Northern Territory Museum and Art Gallery was founded in 1969.

¹⁰ See Professor Colin MacKenzie, 'The medical importance of the native animals of Australia', Document circulated to Members of Parliament, circa 1930, Melbourne, Government Printer, n.d. from the Archive of David Kaus, ref: 1/116-8; also Monica MacCallum, 'Sir William Colin MacKenzie (1877-1938)', in Bede Nairn and Geoffrey Serle (eds), *Australian Dictionary of Biography*, vol. 10, 1891-1939, Lat-Ner, Carlton: Melbourne University Press, 1986, pp. 306-8.

¹¹ Jennifer McCulloch, 'Creatures of Culture: The Animal Protection and Preservation Movements in Sydney 1880-1930', Unpublished PhD thesis, University of Sydney, 1993. McCulloch argues that because of the popularity of the koala, governments and the fur trade 'relinquished' it, so they could continue to hunt kangaroos and possums (p. 221).

¹² Melbourne: C. Parker, 1918-19. See also MacCallum, 'MacKenzie', p. 307. In 1920, the State authorities granted MacKenzie 80 acres at Healesville to the east of Melbourne, to use as a field station. He vacated this at the end of 1927, and recommended that it be expanded as a national park. The Sir Colin MacKenzie Sanctuary (now Healesville Sanctuary) was officially opened in May 1934, following his suggestions.

¹³ 16 August 1923, CPD (Commonwealth Parliamentary Debates) Vol. 105 p. 2839

¹⁴ Sir George Currie and John Graham, *The Origins of CSIRO: Science and the Commonwealth Government 1901-1926*, Melbourne: CSIRO, 1966, p. v. The period they were referring to was 1916-1926, after the establishment by the W. M. Hughes government of the Advisory Council of Science and Industry, and leading up to the establishment of the Council for Scientific and Industrial Research (CSIR) in 1926.

¹⁵ They were formally valued in March 1927 at £100,000. See Report Parliamentary Standing Committee on Public Works (Chaired by G.H. Mackay) on the 'National Museum of Australian Zoology, Canberra' (Australian Archives A1818/3, Item 18 barcode 139729). Quote about 'without price' p. vi. Estimate based on offers from United States.

¹⁶ Mackay Report, p. vi. The Horne, Black and Nankivell ethnological collections and Froggatt's entomological ones were 'promised to the nation', not necessarily to a 'National Museum of Zoology'. The slippage between collections and institutions was one of the problems of this report. In fact the Froggatt collection went to CSIR's Division of Entomology, as discussed below.

¹⁷ Graeme Davison, 'National museums in a global age: Observations abroad and reflections at home', in Darryl McIntyre and Kirsten Wehner (eds), *National Museums: Negotiating Histories* Conference Proceedings. Canberra: National Museum of Australia 2001.

¹⁸ A.C.D. Rivett (Chair) 'Report of Committee Appointed to Advise on the General Question of a National Museum at Canberra'. October 1928 (Typescript 9 pp) Australian Archives, A 458/1 AJ120/6.

¹⁹ There was also strong ethnological work in South Australia about this time, under Norman Tindale, who joined the South Australian Museum in 1917 and was Assistant Entomologist from 1925, then Curator of Anthropology from the late 1920s until 1962. Tindale's collections were housed at the South Australian Museum, where Radcliffe-Brown was more concerned that there should be a 'national' collection.

²⁰ Warwick Anderson, *The Cultivation of Whiteness: Science, Health and Racial Destiny in Australia*, Carlton South: Melbourne University Press, 2002, p. 239.

²¹ Radcliffe-Brown to Private Secretary to the Prime Minister, 30 November 1928. (AA AJ 120/6)

²² Quote from p. 1. The report, dated August 1927, referred to the existing collections of New Guinea, Papua and to new work being undertaken in the Northern Territory, Queensland and the Solomon Islands, but the Prime Minister did not see it until 1929, long after the Rivett report was commissioned.

²³ A.C.D. Rivett to Senator Rt Hon Sir G.F. Pearce, 2 August 1928 (AA AJ120/6).

²⁴ Reply from Pearce, 18 September 1928, (AA AJ120/6). The question of the 'National Museum of Ethnology' recommended by the Australian National Research Council was part of this brief.

²⁵ Rivett Report p. 6.

²⁶ Rivett Report, pp 3-4.

²⁷ Rivett Report p. 3.

- ²⁸ Rivett Report p. 4.
- ²⁹ Rivett Report p. 2, p. 4.
- ³⁰ Wm Colin MacKenzie, 'The importance of Zoology to Medical Science', in Clive E. Lord (ed.) *Proceedings of the Australasian Association for the Advancement of Science* Vol. 19 (Hobart, 1928), Hobart: Government Printer, 1929, pp 235-42.
- ³¹ MacKenzie, 'The importance of Zoology to Medical Science', p. 237.
- ³² MacKenzie, 'The importance of Zoology to Medical Science', p. 241.
- ³³ Mechanics Institutes in Australia were established in Hobart in 1827 (and again in 1849), Sydney 1833 and Melbourne 1839, with Geelong and Portland following in the 1840s. The period following the goldrushes saw their numbers expand rapidly. They extended all over the populous Victoria in particular, but also in other states, offering regional centres for scientific design, the arts and technical knowledge. There is an excellent introduction to the philosophy of the Mechanics Institutes in Stephen Murray-Smith and Anthony John Dare, *The Tech: A Centenary History of the Royal Melbourne Institute of Technology*, Melbourne, Hyland House, 1987. See also Paul Jones, 'Education, enlightenment and entertainment: A History of the Mechanics Institute movement in Victoria', unpublished Public History thesis, Monash University, 1994. On their locations and their recent condition see Pam Baragwanath and Janette Hodgson, *An Inventory of Mechanics' Institutes in Victoria, Vol. One*, Melbourne, Historic Places Section, Department of Natural Resources and Environment. 1998.
- ³⁴ Jan Kociumbas, 'Science as Cultural Ideology: Museums and Mechanics Institutes in Early New South Wales and Van Diemen's Land', *Labour History* No. 64, May 1993, 17-31. Quote p. 17. See also Margaret Anderson and Andrew Reeves, 'Contested Identities: Museums and the Nation in Australia', in Flora E. S. Kaplan (ed), *Museums and the making of "ourselves": the role of objects in national identity*, London and New York: Leicester University Press, 1994, pp 79-124.
- ³⁵ Sara Maroske, 'Mueller's Educational Collection of Plants' in *Botanic Magazine*, Vol. 6, 1995, p. 35. The Botanical Specimen Book lodged by Mueller in the Heathcote Mechanics Institute library is held in the National Historical Collection at the National Museum of Australia.
- ³⁶ Bernard Smith discusses the history of this idea in *Place, Taste and Tradition: A Study of Australian Art since 1788*, Sydney: Ure Smith, 1945. Quote is p. 87. Education in both art and science were equally invoked, for example, in the foundation of the Hobart Mechanics Institute (p. 89).
- ³⁷ Minutes of Evidence, attached to the Mackay Report 1927, 18 February 1927, p. 1.
- ³⁸ Michael McKernan, *Here is their spirit: A History of the Australian War Memorial 1917-1990*, St Lucia: University of Queensland Press, 1991, p. xi.
- ³⁹ Mackay Report on 'National Museum of Australian Zoology, Canberra' estimated the cost of the proposed building, including the reservation and associated residences at £87,080 in 1927.
- ⁴⁰ The building now houses Screensound Australia, in Acton, opposite the Australian Academy of Science.
- ⁴¹ Thus he perpetuated the field station work he had begun at Healesville in 1920 – see footnote 12.
- ⁴² Ian McShane, pers. comm. 14 November 2002, on the basis of his interview with Cumpston's daughter, who recalled considerable friction between Cumpston and MacKenzie. Cumpston was foundation Director-General of Health from 1921-1945, overseeing the move to Canberra in 1928. Health was one of the first departments to move north, something that was regarded as a retrograde step by some. See the brief summary of the department's activities in the 1920s at <http://www.health.gov.au/fact2.pdf> (accessed November 2002), and a full departmental history: Francesca Beddie, *Putting life into years: the Commonwealth's role in Australia's health since 1901*, Canberra: Department of Health and Aged Care, 2001.
- ⁴³ Michael Roe, 'John Howard Lidgett Cumpston (1880-1954), in Bede Nairn and Geoffrey Serle (eds), *Australian Dictionary of Biography*, vol. 8, 1891-1939, Cl-Gib, Carlton: Melbourne University Press, 1981, pp 174-6.
- ⁴⁴ McShane, 'Building a National Museum of Australia', p. 82.
- ⁴⁵ Anderson, *The Cultivation of Whiteness*, p. 240.
- ⁴⁶ Tom Griffiths, *Hunters and Collectors: The Antiquarian Imagination in Australia*, Cambridge: Cambridge University Press, 1996, p. 81. These 'collections' were authorised by the National Museum of Victoria and shared between the Institute of Anatomy and the University of Melbourne.
- ⁴⁷ Letter to Rt Hon Sir S.M. Bruce, Prime Minister from Alex J. Gibson, Hon. Secretary ANRC, 29 February 1928, in Australian Archives, A458 AJ 120/6 barcode 86115.

⁴⁸ Alexander Macleay of course brought a famous international insect collection with him in 1825, when he came to be colonial secretary for New South Wales. He and his son William bequeathed this to the Macleay museum at the University of Sydney. It was not, however, a major collection of *Australian* insects.

⁴⁹ This comment, which originated with Ian Common at CSIRO's Division of Entomology, was most recently popularized in Tim Flannery, *The Future Eaters*. Chatswood: Reed 1994, p. 75.

⁵⁰ Hill was appointed to CSIR in August 1926, Campbell in 1929 and Key in 1936. The Hill termite collection (some of which arose out of Hill's earlier work in the Northern Territory in 1912-17) was not retained at CSIR. It was sold to the USA for £100 in 1941. Murray S. Upton, *A Rich and Diverse Fauna: the history of the Australian National Insect Collection 1926-1991*, Canberra: CSIRO Entomology 1997, pp. 5-6, 93-8, 140.

⁵¹ From CSIR 'Froggatt Collection of Australian Insects', *Journal of the CSIR* vol 1, p. 318 as quoted by Upton, *A Rich and Diverse Fauna*, p.148.

⁵² Upton, *A Rich and Diverse Fauna*, p. 149.

⁵³ Upton, *A Rich and Diverse Fauna*, pp 151-5.

⁵⁴ Upton, *A Rich and Diverse Fauna*, p. 150.

⁵⁵ The Western Australian Museum was an exception in that it included herbarium specimens until 1959. The British Museum of Natural History in Kensington exhibits fauna not flora, and this has been the pattern of most museum collections established in the colonial era. On colonial botanic gardens see Lucile Brockway, *Science and Colonial Expansion: The role of the British Royal Botanic Gardens*, New York: Academic Press, 1979.

⁵⁶ Murray Fagg, 'Australian National Herbarium: Centre for Plant Diversity Research' (Typescript working chronology 2001, kindly provided by the author via e-mail correspondence August 2002). In this chronology, Fagg notes that Calvert originally referred to the collection as 'Herbarium Australiense' and the Latin was corrected later. The term persisted until 1984, when it was renamed Australian National Herbarium.

⁵⁷ Herbarium Australiense was used informally in this period. It was revived later as the term used for the combined herbaria of the CSIRO Divisions of Plant Industry and Land Research, and documented in 1972 in the series *Contributions from Herbarium Australiense*.

⁵⁸ McShane, 'Building the National Museum of Australia', p.82; Tony Bennett, *Birth of the Museum*, Routledge, London, 1995, pp 139-40.

⁵⁹ McKernan, *Here is their spirit*.

⁶⁰ Irene Crespin, 'Collections of Rocks and Fossils' in Royal Society of Canberra, *Symposium on Scientific Collections in Canberra*, (Held at the Australian Institute of Anatomy, 20 May 1959), Roneoed document in archives of the Royal Society of Canberra Box 60/7, Australian Academy of Science Archives, p. 10.

⁶¹ The full paper was not published in the 1946 *Proceedings*, but was referred to in J.W. Evans, 'The Australian Museum', *Australian Journal of Science* 19(1), August 1956, pp. 11-14.

⁶² Memorandum to A.J. Nicholson from the Taxonomic Group, 21 March 1955. Copy in the archives of the Royal Society of Canberra Box 60/7, Australian Academy of Science Archives.

⁶³ P.B. Carne 'The Problem of Type Distribution in Australian Entomology', *Australian Journal of Science* 15(4), February 1953, p. 109.

⁶⁴ P.J. Darlington and W.L. Brown, 'Distribution of Australian Entomological Type Specimens', *Australian Journal of Science*, December 1954, pp 105-6.

⁶⁵ Francis Ratcliffe to Academy of Science, 1 May 1957, Australian Academy of Science Archives, File 1002, National Parks. See also: Libby Robin, 'Nature conservation as a national concern: the role of the Australian Academy of Science', *Historical Records of Australian Science*, 10(1), June 1994, pp 1-24.

⁶⁶ Robert Carrick, 'Vertebrate Collections' in Royal Society of Canberra, *Symposium on Scientific Collections in Canberra*, p. 5

⁶⁷ A.S. George, 'The Background to the *Flora of Australia*, in George (executive editor), *Flora of Australia*, Canberra: Australian Government Publishing Service, 1981, pp 3-14.

⁶⁸ On Hartley's introductions see Brad Collis, *Fields of Discovery: Australia's CSIRO*, Crows Nest: Allen and Unwin, 2002, p. 209.

⁶⁹ William Hartley, 'Nancy Tyson Burbidge', *Brunonia*, Vol. 1(1), 1977, pp 123-9.

- ⁷⁰ Memorandum from W. Hartley to O.H. Frankel 5 October 1955. (Royal Society of Canberra Collection 60/7, Australian Academy of Science).
- ⁷¹ Joint Taxonomic Group 'Document 1 – General Case' (12 pp typescript document, undated, c. September 1955), p. 1 [Royal Society of Canberra Collection 60/7, Australian Academy of Science.]
- ⁷² Joint Taxonomic Group 'Document 1 – General Case', p. 1.
- ⁷³ Joint Taxonomic Group, Confidential Memorandum on 'The Establishment of an Australian Natural History Museum' (sent to Chiefs of Entomology (Nicholson) and Plant Industry (Frankel), and Officers-in-Charge of Wildlife (Ratcliffe) and Land Research and Regional Survey (C. S. Christian), undated (c. September 1955), 4 pp (typescript). [Royal Society of Canberra Collection 60/7, Australian Academy of Science.]
- ⁷⁴ Joint Taxonomic Group 'Document 1 – General Case', pp 1-4. Each of these cases was expanded upon: in the case of malaria, the problem was misidentification of the vector, in the cotton and sheep industries, misidentification of the trouble-maker. In the north Australian example, the survey work of the CSIR Land Research and Regional Survey group was impeded by an absence of previous plant identification.
- ⁷⁵ Confidential Memorandum on 'The Establishment of an Australian Natural History Museum', pp 1-2; Also Taxonomic Group, 'Document 2: Ideal Set-up' (3pp document, undated c September 1955), (heavily annotated in Royal Society of Canberra collection, 60/7, Australian Academy of Science). This document included proposed staffing levels, and a suggested board of trustees including CSIRO (5 changed to 7), Australian National University (5 changed to 3), Australian Academy of Science (5), Department of Interior (2), Department of Health (2), Department of Treasury (1).
- ⁷⁶ Carrick, 'Vertebrate Collections', p. 4.
- ⁷⁷ Carrick, 'Vertebrate Collections', p. 2.
- ⁷⁸ There were no married women in the Commonwealth Public Service at this time.
- ⁷⁹ I am grateful to Murray Fagg for his chronological timeline (see <http://www.anbg.gov.au/anbg/chronology.html> accessed 9 August 2002), and for other information on these events, including the date (25 August 1960), when Questions in the Commonwealth Senate led to a formal commitment to indigenous plantings.
- ⁸⁰ The Royal Society of Canberra had also been active in this enterprise. See *Proposal to Develop the Upper Tidbinbilla Valley as a National Native Fauna Reserve* (mimeo), p. 1. [Royal Society of Canberra Collection 60/7, Australian Academy of Science.] The research proposed for Tidbinbilla was directed strongly at the scientific conservation of fauna, rather than taxonomy, and Tidbinbilla was seen as a 'model' for nation-wide reserves.
- ⁸¹ George, 'Background', p. 5.
- ⁸² The Committee met in Melbourne 22-25 April 1959, and the report was published in 1960. R. T. M. Pescott initially convened the group, and other members were Blake (elected Chair), D. J. Carr, HJ. Eichler, L. A. S. Johnson, S. Smith-White and D. E. Symons. See George 'Background', p. 6.
- ⁸³ See 'Nancy Tyson Burbidge' on <http://www.anbg.gov.au/people/burbidge.nancy.html>. (accessed 13 August 2002) and Hartley, 'Nancy Tyson Burbidge', p. 125.
- ⁸⁴ George, 'Background' p. 8; Hartley, 'Nancy Tyson Burbidge', p. 125.
- ⁸⁵ The renaming coincided with its expansion to include the Forest Research Institute's Eucalypt collection and the Atherton rainforest herbarium. In 1972 the CSIRO Division of Plant Industry published a series of monographs entitled *Herbarium Australiense*. The first issue, published 29 February 1972 records that the Herbarium as 'jointly administered', but from the second issue (4 May 1973) onwards, Plant Industry administered it. This journal ceased in 1976, and was replaced from 1978 by *Brunonia*, which was expanded to catered for scientific contributions beyond CSIRO.
- ⁸⁶ See 'Minutes of Evidence relating to the proposed erection of Botanical Laboratories at Canberra', pp 2-3 (renumbered pp 2352-3), in Australia: *Parliamentary Papers* Session 1929, Volume II, pp 2341-99. 'Economic Chemistry' was also a term used by the Sydney Technical Museum as early as 1919. On the Empire Marketing Board and ecology see: Libby Robin, 'Ecology: A science of empire?', in Tom Griffiths and Libby Robin (eds) *Ecology and Empire: Environmental History of Settler Societies*, Edinburgh: Keele University Press, pp 63-75.
- ⁸⁷ Upton, *A Rich and Diverse Fauna*, pp 86-7.
- ⁸⁸ For example there were, by contrast with the era before the 1920s, very few bird collecting ventures in this period, because of growing concerns about conservation. The efforts by the British

Museum to supplement their ornithological collections through a five-expedition plan funded by expatriate Australian, Harold Hall, in the 1960s were very unpopular. (See Libby Robin, *Flight of the Emu: A hundred years of Australian ornithology 1901-2001*, Carlton: Melbourne University Press, 2001, pp 200-202.)

⁸⁹ Definitions from Upton, *A Rich and Diverse Fauna*, p. xvii (after Cranston *et al*).

⁹⁰ Richard H. Tedford, 'Vertebrate Palaeontology in Australia: the American Contribution', in P. Vickers-Rich *et al.* (eds), *Vertebrate Palaeontology in Australia*, Lilydale: Pioneer, 1991, pp 46-83. There were many other expeditions, including those of Ernest Lundelius (University of Texas) and William Turnbull (Field Museum of Natural History). Both Stirton and Alden Miller, a palaeo-ornithologist who worked on the same field sites, died suddenly in 1966, but the Stirton 'school' continued to work on the material, from the Lake Eyre Basin, Bullock Creek (a Miocene fauna deposit) and New Guinea. In the 1950s, the South Australian Museum welcomed Stirton's arrival because it wanted information about the location of materials already in the SAM collections, especially the Lake Callabonna finds from the turn of the century. Their exact location had been lost in the five or six intervening decades. (M.A. Smith pers. comm., 22 August 2002).

⁹¹ Robin, *Flight of the Emu*, pp 192-3.

⁹² I. F. B. Common, 'Entomological collections', in Royal Society of Canberra, *Symposium on scientific collections in Canberra*, p. 6. See also Jim Cullen's 'Foreword' in Upton, *A Rich and Diverse Fauna*, p. v. Cullen's 1997 estimate is more conservative (200,000 insects for Australia) but his estimate of the proportion of multicellular animals that are insects is somewhat higher (80 percent).

⁹³ H. E. LeGrand, *Drifting Continents and Shifting Theories*, Cambridge: Cambridge University Press, 1988.

⁹⁴ Ernst Mayr, 'Geography and Ecology as Faunal Determinants', in K. H. Voous (ed.), *Proceedings of the 15th IOC 1970, The Hague*, Leiden: E. J. Brill 1972, p. 551.

⁹⁵ Ernst Mayr did not remain a leader in these debates for long, although he was prominent early on. New biochemical techniques and genetic theories brought younger scholars with different ideas about systematics like Joel Cracraft (University of Illinois Medical Center) and Charles Sibley (Peabody Museum) into discussions of southern origins for bird families (See Robin, *Flight of the Emu*, pp 235-8).

⁹⁶ Upton, *A Rich and Diverse Fauna*, p. 182.

⁹⁷ Correspondence between Mayr and Michael White, who chaired the Museum of Australian Biology committee of the Academy reveals this. See for example White to Mayr, 18 September 1961, where White is suggesting that Mayr come as 'DOS' (Distinguished Overseas Speaker) to a symposium on Australian biology (p. 2). [AAS File 1012, 'Fauna and Flora Committee: Museum of Australian Biology']

⁹⁸ Charles Hedley, 'President's Address - Section D', *Proceedings of the Australasian Association for the Advancement of Science*, Vol. 12 (Brisbane Meeting), 1909, pp 329-71. Quote p. 340, was referring particularly to a survey of the marine fauna of Queensland (hence the fisheries bureau), but the principle of institutional responsibility has wider application. See also Linden Gillbank, 'The Life Sciences: Collections to Conservation', in Roy Macleod (ed.), *The Commonwealth of Science: ANZAAS and the Scientific Enterprise in Australasia 1888-1988*, Melbourne: Oxford University Press 1988, pp 99-129.

⁹⁹ In his Presidential Address to the Royal Zoological Society of NSW, cited in Upton, *A Rich and Diverse Fauna*, p. 91. Bureau was a popular term in North America at this time, and ecologist Charles Elton at Oxford University (Bureau of Animal Ecology) also used the term.

¹⁰⁰ Upton, *A Rich and Diverse Fauna*, p. 92.

¹⁰¹ Letter F. N. Ratcliffe to Australian Academy of Science 1 May 1957 [File 1002, 'National Parks'].

¹⁰² Letter Nicholson to Oliphant, 7 November 1955, [AAS File 1011, 'Fauna and Flora Committee']

¹⁰³ Letter Oliphant to Menzies 9 November 1955, and reply Menzies to Oliphant, 27 February 1956, [AAS File 1011, 'Fauna and Flora Committee'].

¹⁰⁴ Letter Oliphant to Menzies 4 April 1956 [AAS File 1011, 'Fauna and Flora Committee'].

¹⁰⁵ Evans, 'The Australian Museum', p. 14.

¹⁰⁶ Council dismissed the compromise put forward by Evans in December 1958 [Letter J. Deeble to Evans 18 December 1958, AAS File 1002, 'National Parks'].

¹⁰⁷ On the conservation issues see Robin, 'Nature conservation as a national concern'.

¹⁰⁸ Rogers to Fenner, 29 March 1960 [AAS File 1011, 'Fauna and Flora Committee'].

¹⁰⁹ Evans to Sunderland, 27th February 1958, p. 2 [AAS File 1011, 'Fauna and Flora Committee'].

¹¹⁰ Fenner, discussions with the author, 2 April 2002.

¹¹¹ Fenner to Rogers, 28 June 1960. [AAS File 1011, 'Fauna and Flora Committee']. Waterhouse was formally appointed in 1961, but was acting Chief at the time the committee was established. He succeeded Fenner as Secretary (Biological Sciences) for the Academy.

¹¹² As summarized in Fauna and Flora Committee of the Australian Academy of Science, *Proposal to Establish a Biological Survey of Australia*, Canberra: Australian Academy of Science, October 1968 (19 pp mimeo), p. 2.

¹¹³ R. P. Stone letter to W. Hartley, 27 May 1959, RSC collection. Stone represented the Museums Association of Australia on the Museums Committee for the Australian National Advisory Committee for UNESCO.

¹¹⁴ Frank Fenner (ed), *The first forty years*, Canberra: Australian Academy of Science, 1995, p. 131. Letter was sent 18 January 1962, reply 21 April 1965.

¹¹⁵ Fauna and Flora Committee of the Australian Academy of Science, *Proposal to Establish a Biological Survey of Australia*, Canberra: Academy October 1968, (mimeo 19 pp), p. 2. It was probably significant that the most vociferous opponent of national collections in Canberra, Evans, had retired in 1966 as Director of the Australian Museum, Sydney.

¹¹⁶ Committee for the Establishment of a Biological Centre in Canberra, *A Biological Centre for Canberra*, Canberra: the Committee, (mimeo, 27 pp), p. 2.

The Committee comprised 23 members, 22 of whom were scientists, ten from Australian National University, ten from CSIRO (including the Chiefs of Wildlife Research and Entomology), a lawyer, the Officer-in-Charge of the Institute of Anatomy, and Dr W. K. Whitten from the National Biological Standards Laboratory.

¹¹⁷ *A Biological Centre for Canberra*, p. 4. In 1965 it could rightly claim to be a 'unique institution, the first of its kind in the world.' In 2002, a similar plan is afoot with a slightly different emphasis through the Nature and Society Forum (see <http://www.natsoc.org.au/> under 'Biosphere' – proposal is in PDF format, accessed 29 August 2002); Also Stephen Boyden, interview with the author 4 April 02. There are now other successful institutions like this elsewhere including the Desert Museum in Tucson, Arizona, and the 'Biopark' at Alice Springs Desert Park, established in 1997.

¹¹⁸ Upton, *A Rich and Diverse Fauna*, pp 181, 186. Maxwell F. C. Day, Maxwell J. Whitten and Don Sands, 'Douglas Frew Waterhouse 1916-2000', *Historical Records of Australian Science*, 13(4), December 2001, pp 495-519, esp. p. 504.

¹¹⁹ 'Pigott Report' [Australia. Committee of Inquiry on Museums and National Collections. *Museums in Australia 1975: Report of the Committee of Inquiry on Museums and National Collections including the report of the Planning Committee on the Gallery of Aboriginal Australia*. Canberra: Australian Government Publishing Service, 1975.], p. 74. There is fuller discussion of the Pigott report below.

¹²⁰ Canberra: The Academy, October 1968, (mimeo 19 pp).

¹²¹ Upton, *A Rich and Diverse Fauna*, p. 190. Also <http://www.ea.gov.au/biodiversity/abrs/about/history.html>, accessed 30 August 2002.

¹²² Fenner (ed), *The first forty years*, pp 129-30.

¹²³ Fenner, pers. comm. 2 April 2002. By this time the Biological Centre proposal was being proposed, but although Fenner was a member of the committee (and is indeed a member of the committee proposing the new version of this proposal in 2002), this proposal was not put forward under the Academy's auspices.

¹²⁴ In April 1963 a draft report 'Prevention of unrestricted export of Australian insects' was circulated to 42 institutions for comment. Twenty out of the 25 responses favoured informal arrangements over legislation. Upton, *A Rich and Diverse Fauna*, pp 295-318 details the whole saga of Regulation 13A. I have drawn on this and on several archival files simply labelled '13A' from Waterhouse's own papers (held at CSIRO Entomology). (I am grateful to Jim Cullen and Max Day for facilitating my access to these records).

¹²⁵ In a letter to D.F. Waterhouse 20 April 1965, cited in Waterhouse 'History of moves to secure the return to Australia of Holotypes stemming from insect material sent overseas', in *Supplement to the Australian Entomological Society News Bulletin*, 10 (1), February 1974, pp 3-5.

¹²⁶ See Robin, *Flight of the Emu*, pp 200-2. The type specimen for the 'Hall's Babbler' *Pomatostomus halli*, the only new bird to science discovered by the expeditions between 1964 and 1968, was deposited in the Queensland museum in keeping with this principle. New subspecies were also treated this way. Some 4709 skins, 786 skeletons, 910 fluid specimens and 2700 tongues went to the British

Museum collection. Insects, however, were more problematic than birds because much less was known about them, so new species might continue to be identified in the collections in years to come.

¹²⁷ Upton, *A Rich and Diverse Fauna*, pp 303-6.

¹²⁸ [Editorial] 'Insect Export Restriction Enquiry', in *Supplement to the Australian Entomological Society News Bulletin*, 10 (1), February 1974, pp. 1-2. It was noted that the State Museum directors would also eventually be so authorized 'when delays occasioned by protocol have been overcome'.

¹²⁹ G. B. Monteith 'A case against legislative control of insect export' in *Supplement to the Australian Entomological Society News Bulletin*, 10 (1), February 1974, pp 5-8.

¹³⁰ J. W. Evans, 'A liberal democracy?' in *Search* 10(7-8), July-August 1979, pp 260-2, quotes p. 260.

¹³¹ 24 December 1979. See Upton, *A Rich and Diverse Fauna*, pp 312-13.

¹³² Day, Whitten and Sands 'Douglas Frew Waterhouse 1916-2000', p. 504.

¹³³ Pigott was an executive with a Swiss Medical Corporation. The other members of the group were Geoffrey Blainey, then an academic historian (but who had also worked as a commissioned historian), Wendy Clayton (a photographer who represented the general community), John Mulvaney (an Australian National University archaeologist and prehistorian), Frank Talbot (zoologist and Director of the Australian Museum), F. J. Waters (Secretary of the Postal Union), Doug Waterhouse (entomologist and Chief CSIRO Division of Entomology, with responsibility for the Australian National Insect Collection) and R. W. (Bill) Boswell, a physicist who had worked at the Woomera Rocket Range before transferring to the Department of Science. Boswell died about a month before the report was presented, but according to John Mulvaney, was very influential in the Inquiry. E. E. Payne, Deputy Secretary of the Department of Health (which still had statutory responsibility for the MacKenzie collection) drafted the report.

¹³⁴ Pigott Report, p. 1.

¹³⁵ Fellowship of the First Fleeters. *Australia Day Celebrations: Suggested Activities*, Sydney FFF, c. 1968. (Pamphlet 16pp NLP 394.26994 F322, National Library of Australia). Section K #16, p. 14 refers to built historical heritage. On the shift from the spiritual to the material see Graeme Davison, "The meanings of 'heritage'", in Davison and Chris McConville (eds) *A Heritage Handbook*, Sydney: Allen and Unwin, pp 1-13. On the shift to history as heritage see also Griffiths, *Hunters and Collectors*, pp. 195-218.

¹³⁶ Pigott report, p. 35. The Australian Heritage Commission was established in 1975. *The Report of the National Estate* was published in 1974.

¹³⁷ The AIAS is now the Australian Institute for Aboriginal and Torres Strait Islander Studies (AIATSIS). It is a separate institution but its new building is on the same site as the National Museum of Australia, and it was built at the same time as part of a joint arrangement.

¹³⁸ *Australian Heritage Commission Act* 1975, Section 4(1).

¹³⁹ Mulvaney commented on the influence and timing of the first conference on the Pigott enquiry (interview 2 April 2002). The Project Coordination Committee met four times in 1975 and 1976 and finally reported back to the Australian Heritage Commission in 1978. Australia was at the vanguard of international thinking in historical archaeology. For example, the UNESCO *Recommendation concerning the safeguarding and contemporary role of historic areas* [Paris: UNESCO] was adopted by the General Conference at its nineteenth session, Nairobi, 26 November 1976. The full *Report of the Project Coordination Committee on Historical Archaeology* was published internally by the Australian National University in February 1978. It lists thirteen committee members, including Mulvaney himself, and three other university archaeologists, representatives of two State museums and two National Parks services, three architectural historians, and archivist and an architectural photographer.

¹⁴⁰ 'The Lingiari Story' on <http://www.lingiari.startyourweb.com/pages/101.html>, accessed 29 August 2002.

¹⁴¹ The repatriation of human remains is one of the inherited responsibilities of the new National Museum of Australia, and this institution is the only place in Australia that can receive repatriated human remains from international museums and other institutions.

¹⁴² Museums visited are listed in Appendix II (pp 116-8, Pigott Report). International museums selected were in Canada, Denmark, Germany, Mexico, Netherlands, Spain, United Kingdom, and USA. National and maritime museums were of particular interest, as these were among the major concerns of the inquiry.

¹⁴³ Pigott Report, Section 11.4, p. 62.

¹⁴⁴ Pigott Report, Section 2.9, p. 3; Mulvaney (interview with the author, 2 April 2002).

¹⁴⁵ Letter Mulvaney to the author 5 September 2002.

¹⁴⁶ In 2002 this conservation course is threatened with closure because of financial constraints at the University of Canberra.

¹⁴⁷ Pigott Report, Section 8.3, p. 38. The Australia Post Collections are now part of the National Historical Collection at the National Museum of Australia.

¹⁴⁸ Pigott Report, Section 2.6, p. 3 and Section 5, pp 19-28.

¹⁴⁹ Pigott Report, the five Sections 8.30-8.34 (pp 45-6) present the Majority View, whilst the six Sections 8.35-8.40 (pp 46-8) present the Minority View. A separate report on a Gallery of Aboriginal Australia, from its Planning Committee (chaired by Mulvaney) recommended Aboriginal art, ethnographic material and other cultural artefacts be established as a separate entity in consultation with Aboriginal communities, the Aboriginal Arts Board and the Australian Institute of Aboriginal Studies. This report was published separately, and also within the Pigott Inquiry report.

¹⁵⁰ Pigott Report, Section 8.40, p. 48.

¹⁵¹ Upton, *A rich and diverse fauna*, p. 190.

¹⁵² Interview with John Mulvaney 2 April 2002.

¹⁵³ Upton, *A rich and diverse fauna*, p. 192.

¹⁵⁴ Upton, *A rich and diverse fauna*, pp 192-3.

¹⁵⁵ *National Museum of Australia Act 1980*, Section 6 1(a).

¹⁵⁶ *National Museum of Australia Act 1980*, Section 6 1(c).

¹⁵⁷ Pigott Report, Section 12.6, pp 70-1.

¹⁵⁸ Since 1966, the CSIRO Division of Wildlife Research has maintained its Wildlife Collection in a dedicated space. It began formally with 8800 bird and 8500 mammal specimens. See Richard Schodde, 'The Australian National Wildlife Collection', in [George Main], *Of Beauty Rich and Rare: Fifty Years of CSIRO Wildlife and Ecology*, Canberra: CSIRO W&E, 1999, pp. 29-31. In 1980, it also managed the Australian Bird Banding Scheme, but divested itself of this in 1984. Entomology had responsibility for the Australian National Insect Collection, and Plant Industry still maintained the Herbarium Australiense (later the Australian National Herbarium).

¹⁵⁹ Even the National Maritime Museum, one of the 'other national museums' proposed in Section 13 of the Pigott report was built sooner, because of the political impetus of the remarkable *Australia II* win in the America's Cup of 1983. A purpose-built building was constructed in Darling Harbour, Sydney, but the *Australia II* returned to Perth, at the request of the Western Australians.

¹⁶⁰ The Fauna and Flora Committee of the Australian Academy of Science and The Australian Institute of Biology Inc. sponsored the conference (11-12 November 1991) and the publication in a special issue of *The Australian Biologist* 5(1) March 1992.

¹⁶¹ Fauna and Flora Committee AAS, *Proposal to Establish a Biological Survey of Australia*, p. 1.

¹⁶² This phrase was the title of a keynote address by Peter H. Raven (from the Missouri Botanical Garden, St Louis, USA) published in *Australian Biologist* Vol 5(1), March 1992, pp 9-13. The Minister's speech is in the same volume, pp 4-7.

¹⁶³ 'Symposium recommendations', *Australian Biologist* Vol 5(1), March 1992, p. 8.

¹⁶⁴ Windschuttle, 'How not to run a museum', p. 17.

¹⁶⁵ See Lord May, 'Good science must include the people', *The Age* 25 September 2001. Also at <http://www.theage.com.au/news/state/2001/09/25/FFXXJ4O5ZRC.html> (accessed 22 November 2002).

¹⁶⁶ Linda Young, 'The National Museum of Australia', *Australian Historical Studies*, vol. 117, 2001, 344-8, quote p. 345.

¹⁶⁷ Pigott Report, Section 12.15, p. 73.