Pacific Science, vol. 54, no. 3: 209–225

Developing a Sense of the Pacific: The 1923 Pan-Pacific Science Congress in Australia[1]

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ABSTRACT: The Australian Congress of 1923 was a determining moment for the Pacific Science Association. In contrast to the Australian meeting of the British Association for the Advancement of Science, held in 1914, this first post-war Congress signaled the emergence of a new scientific nationalism in Australia and the advent of a new scientific relationship between Australia and its great and powerful friend across the Pacific. At the same time, the success of the Congress gave the infant Pan-Pacific movement much-needed visibility and support and led directly to the permanent establishment of the Pacific Science Association and to its continuing presence in international scientific affairs.

In August 1920, the first Pan-Pacific Science Conference took place in Honolulu—engineered by the colorful, entrepreneurial journalist Alexander Hume Ford and the Yale geologist and recently arrived director of the Bishop Museum Herbert E. Gregory. To Honolulu came more than a hundred scientists from nine countries around the Pacific rim and beyond. The second Congress, held in Australia, was a more elaborate affair and a more determining moment. At its close, leading members proposed a permanent organization—the Pacific Science Association (PSA)—which came into existence following the third Pan-Pacific Science Congress in Tokyo in 1926. The second Congress was also pivotal in the history of Australian science and in the recognition of science as an instrument of Australian national, regional, and international policy. In this paper we outline the origins of the Congress and discuss its significance for Pacific science and for the emerging self-image of science in Australia.

BACKGROUND

"The scientific problems of the Pacific are so numerous and varied," wrote Herbert Gregory in the journal *Science,* that the value of international cooperation was foreshadowed long before the event (1923 : 502). The first Pan-Pacific Science Conference in 1920 was almost entirely an American inspiration. During the first years of the century, the United States asserted a new confidence in the world of science. Although most Americans continued to look to traditional centers of scientific culture in Europe, others turned to the Pacific. Where French, British, and German influence was not already well established, and even where it was dominant, American science sought a place in the sun.

For scientists working in the American West, the idea of "Pacific Science" had an intrinsic appeal. In 1915, the Panama Pacific Exposition held in San Francisco featured a conference on Science in the Pacific (Todd 1921), and the "scientific exploration" of the Pacific was a theme featured at the Pacific Division of the American Association for the Advancement of Science in 1919. From the 1890s, the California Academy of Sciences (founded in 1853 to survey and study the vast resources of California and beyond), discussed the importance of an American scientific presence in the Pacific—extending even to the Galápagos Archipelago, with its rich

[1] This paper arose from a lecture given to the first plenary session of the Pacific Science Congress at Sydney in July 1999. Manuscript accepted 1 November 1999.

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treasury of faunal diversity, of central significance to evolutionary theory (Leviton and Aldrich 1997).

In 1916, following its first symposium on the Pacific, the U.S. National Academy of Sciences set up a permanent Committee on Pacific Exploration, which, in 1919, was reconstituted as the Committee on Pacific Investigations of the newly formed National Research Council (NRC). This committee was chaired by Herbert Gregory (1869–1952), Silliman Professor of Geology at Yale University. In 1919, Gregory became director of the Bishop Museum and lived in Honolulu for the next quarter century (Longwell 1954, Elkin 1961).

Gregory's scientific interests in the Pacific were complemented by the energy and enterprise of another American, Alexander Hume Ford (1868–1945). A journalist entirely without scientific pretensions, Ford came to Hawai'i in 1907, full of grand schemes for expanding Hawai'i's role in the Pacific. In 1910, he began the *Mid-Pacific Magazine,* and in 1917 founded the Pan-Pacific Union, both dedicated to the improvement of international relations through the creation of what he called a "Patriotism of the Pacific." In 1920, the year after astronomers in the Pacific marked the confirmation of Einstein's general theory of relativity, Gregory and Ford launched the first Pan-Pacific Science Conference (Rehbock 1988*a*). It was the first of many international gatherings that Ford conceived and promoted (Hooper 1980, Noble 1980). It was also the offspring of a marriage between science—represented by Gregory, the Bishop Museum, and the National Research Council—and commerce, represented by Ford and the Pan-Pacific Union, a uniquely Hawaiian partnership.

The Conference of 1920 was a highly successful adventure in ideas. But Gregory knew that to promote Pacific science systematically would require regular meetings of representatives from "continental countries, [and] from educational centers which give little thought to the great Pacific region." More significantly, perhaps, the pursuit of Pacific science involved a fundamental change in intellectual outlook. As Gregory put it:

> To do the best work, I believe it essential to think in Pacific terms. There is something about the sentiment or feeling that "this is my part of the world and my job to solve its problems," which reacts on scientific workers. Few of us have that attitude. In moments of abstraction our minds unconsciously turn to Europe or to the Atlantic seaboard or perhaps make the jump to Japan or China. Our friends from New Zealand know all about England but are surprised in Hawaii. The Hawaiians, in turn, know little of their English-speaking brothers to the south. It is difficult for us in Honolulu to realize the importance of a knowledge of Japan, Java, and Australia, and that to know something of the working of the Chinese mind is of greater immediate value than familiarity with the politics of New York City. Most of us are Atlantic-minded rather than Pacific-minded, but somehow we should develop a Pacific sense. I believe it is a conditioning factor in the training of scientists for Pacific work. (Gregory 1921*a*)

Recognizing that this "Pacific sense" would require careful nurturing, Gregory was determined that the momentum generated by the Honolulu Conference would not disappear. Accordingly, he convened a six-member "committee on future conferences" to plan a second meeting. Its members included Thomas Wayland Vaughan, a geologist employed by the U.S. Geological Survey in Washington, D.C., and later director of the Scripps Institution for Biological Research at San Diego (Thompson 1958, Shor 1983, Mills 1991, Rainger 1999); Charles McLean Fraser, an ichthyologist and director of the biological station at Nanaimo, British Columbia; Fusakichi Omori, a seismologist at Tokyo University; and Charles Chilton, a New Zealand zoologist. Soon to be the most important actor in this cast was Ernest Clayton Andrews, a student of Professor T. W. Edgeworth David at the University of Sydney, a senior geologist of the New South Wales Geological Survey (from 1899) and its director (1920–1930), and a former president of the Royal Society of New South Wales and honorary general secretary of the Australasian Association for the Advancement of Science (Walsh 1979).

The Honolulu Conference had demonstrated the desirability of a permanent organization. Gregory hoped that a second meeting would bring this about. Such a meeting, at a different venue, with greater international participation, would need a special

combination of motives. For Gregory's purposes, it was fortunate that Andrews had motives in good measure (Walsh 1979). One of the seven Australians who had attended the Honolulu meeting, Andrews was well placed, as a geologist, to share Gregory's views. Andrews proposed that the second Congress should be held in the Southern Hemisphere, either in Australia or New Zealand, and on returning to Australia from Honolulu wrote the prime minister, W. H. Hughes, to that effect in a letter requesting the financial assistance of the Commonwealth government (Australian Museum Archives 1920). But Gregory's committee had no power to call international conferences or to invite national delegates, and a full 2 years elapsed before events took their course. In part, the delay was caused by Gregory's decision to widen his international network. This involved defining what the "Pacific" meant and developing a rationale for treating the vast region as a scientific unit. Participation and support for "Pacific science" and the success of future congresses would depend upon how well such questions were resolved.

DEFINING THE PACIFIC

The Bishop Museum and the NRC served as springboards for Gregory's plans. In March 1921, at Gregory's request, the NRC's permanent secretary, Vernon Kellogg, wrote the governments of 27 countries, pointing to the success of the Honolulu conference, but observing that "the scientific problems presented by the region are too large and complex to be satisfactorily solved except by the sympathetic cooperation of both privately endowed institutions and governmental agencies. . . ." There was both motive and opportunity to do more. "In order," he suggested, "to make possible the desired cooperation or coordination of work, some kind of permanent organization of an international character is needed" (Kellogg 1921*a*).

Kellogg proposed that the invited countries should, following the American example, create committees for Pacific investigation, linked through the International Research Council (IRC). The IRC was established in Brussels in 1919 by wartime neutral and Allied nations, led by the United States, Britain, and France, to replace Germany's prewar hegemony in the organization of international science. Each member country was required to create a national academy or research council as an "adhering body" to the IRC. The NRC was the American body. Kellogg suggested that each Pacific country, having established a counterpart, should send delegates from it to a new organization, dedicated to Pacific science.

Replies to Kellogg's proposal came from only six countries: Australia, Canada, Japan, Java, Mexico, and The Netherlands. Today, such a limited response is not surprising because several countries asked—including Brazil, Argentina, Uruguay, Cuba, and the Dominican Republic—had no conspicuous Pacific interest or even a Pacific coastline. It is perhaps more significant that China and the Soviet Union were not included. (In fact, the address list might have been used by the Pan-American Union [just a few blocks up Constitution Avenue in Washington, D.C.], with the major Pacific nations added. The NRC apparently had a broad vision of Pacific geography, which included the Dominican Republic [File FR : IC, Archives, National Academy of Sciences]. All European colonies [now independent countries] of the region were omitted by diplomatic convention. These included Korea [under a Japanese mandate], Indo-China [France], and the islands of Micronesia, Melanesia, Polynesia, and Indonesia [variously under French, British, or Dutch colonial rule, or under League of Nations mandates].) For Kellogg and perhaps even for Gregory, the "Pacific" was to be defined in geopolitical terms convenient to the Allies, or better yet, in no clear terms at all. The future would soon raise many such delicate political questions. For example, what would be the position of France? France had come to the first meeting and would be invited to the next. France had been a scientific and colonial power in the Pacific since the eighteenth century. But

would France participate in such a manifestly anglophone enterprise?

A parallel conversation arose in relation to The Netherlands and went on to the ill-defined question of boundaries. What were the geographical limits of the Pacific? If the Pacific was considered to include the Dutch East Indies, then The Netherlands was an indispensable partner in the enterprise. This question, at least, was answered by Professor L. Bolk, secretary of the Koninklijke Akademie van Wetenschappen (Royal Academy of Sciences) in Amsterdam. The Dutch calculated that "[the East Indies] constitutes the southwestern boundary of the Pacific Ocean." Morever, there was a history of Dutch science in the region. "Many scientific problems that are urgent in that region of the world," Bolk added, "have been attacked with some success already by Dutch scientists." There had been no Dutch scientists at the Honolulu Conference, but the Akademie insisted that "our country cannot stay behind in this international cooperation. The Dutch colonial empire deserves consideration in this connection" (Bolk 1921).

Bolk was apprehensive about what seemed to be an Anglo-Saxon intrusion into Pacific territories under Dutch control. When, indeed, the Akademie discovered that the Honolulu Conference had apparently assigned the geological mapping of the Dutch East Indies to an American geologist, its officers advised Kellogg that they would reserve their position until such time as they could decide "the way in which our country can get its share in this cooperation" (Bolk 1921). Fortunately, Kellogg reassured the Akademie that the NRC recognized "the important place which Dutch scientists have taken in the scientific work of this region and we greatly value the cooperation of your countrymen in furthering this work." He also explained that the Honolulu Conference had not assigned the mapping exercise to anyone, but had merely invited an American to compile data on the region. That American, moreover, was instructed to proceed in "close though informal cooperation" with scientists from The Netherlands (Kellogg 1921*b*).

By careful diplomacy, peace had been preserved, but the incident had repercussions. Six months later, Bolk announced that the Dutch Akademie had appointed an "International Circumpacific Research Committee," consisting of 33 members organized in eight sections (Anthropology, Botany, Chemistry, Geography, Geology, Climatology/Meteorology/Seismology, Vulcanology, and Zoology). These scientists had "taken or still are taking an active part in the development of the natural sciences in our East Indian colonies" (Bolk 1922). To amplify the Dutch presence, the following year the Akademie published an eight-page "List of Problems" for discussion at the next Congress—ranging from the location of examples of *Pithecanthropus erectus* (first discovered in Java by Eugene Dubois in the early 1890s) to aerial surveys of coral reefs. Dominating the list were questions of geology, notably Alfred Wegener's hypothesis of continental drift, which the Dutch proposed to test by measurements at 5-year intervals to determine whether Pacific islands were moving with respect to the surrounding seafloor (Koninklijke Akademie van Wetenschappen 1923). It was clear that the Dutch were keen to play a continuing scientific role in the region.

If geopolitics shaped the discussion of boundaries, nature suggested a rationale for research. In 1922, E. C. Andrews took up the conversation by suggesting an organization to "promote the material and social advancement of the peoples of the Pacific region by the discussion of scientific problems which are common to them, and which are of great economic importance." Andrews appealed to the cultivation of a "Pacific sense," based upon a transcending belief in the conceptual and physical unity of the region. As he put it: "To appreciate the possibility of this community of scientific interests it is necessary to understand the underlying geographical and structural unity of the area, which is shown in the peculiar and symmetrical arrangements of its ocean depths, its volcanoes, its earthquake zones, its mountain ranges, its islands, and its coral reefs. The simplest explanation of this remarkable unity is that the floor of the Pacific Ocean has

sagged slightly as a whole, and that the bordering continents have been drawn to it in the form of earth waves, undulations, or crinkles. This great geological unity has tended to keep the peoples on each side of its basin separated from each other" (Andrews 1922*b*). For Andrews, the ocean simultaneously provided the unity of the region and the source of its differences—its connections and its disjunctions. Above all, however, the Pacific was an environmental unit, a *natural* unit for scientific study, one that legitimately invited the intellectual cooperation of all nations sharing its boundaries. This philosophical commitment to a sense of geological and geographical "unity" was a recurring theme in Andrews' writings. A year later, after lecturing on the theme in Sydney, he wrote to T. W. Vaughan, who had become director of the Scripps Institution for Biological Research, "The more I consider the case for the 'Geographical Unity of the Pacific['] and the attempt to co-ordinate the present state of knowledge of the structure of the continents, the more it seems to me that the sub-oceanic mass of the Pacific appears to exercise a great control on the surrounding continents. It has occurred to me that this work might be undertaken some time by somebody—perhaps myself—who could co-ordinate all the main facts of structure within the Pacific Region" (Andrews 1924). (His Humboldtian ambitions surely warrant further study.)

In 1924, Herbert Gregory elaborated on this theme at a luncheon for Honolulu notables. The Pacific was not (yet) an economic, political, or social unit. But science could help construct it so. As he put it:

> One thing is certain—any area which is comparatively unknown from the standpoint of trying to obtain information and knowledge is a unit on that basis and thus the Pacific becomes a unit for scientific problems. These problems are of as much interest to Japan, Australia or New Zealand as they are to North or South America and it makes no difference what countries those problems arise in. So there has been a general agreement—a gentlemen's agreement—that the Pacific may be treated as a unit for scientific investigations. It so happens that it is a unit in many respects geologically—it has its own type of structure, fossils, etc. And so, in a large way, it is a unit botanically, although the western part of the Pacific has its connections with Asia. So, even in a technical sense, it is a unit which needs the same treatment in order to obtain necessary information, and in the sense of area, it is distinctively a unit. (Gregory 1924*b*)

TACTICAL INITIATIVES

Together, Andrews and Gregory wrote the grand narrative, and both seized the day. Writing on 25 March 1921 to his Committee on Future Conferences, Gregory outlined a plan for congresses to be held every 3 years, with the next taking place no earlier than 1923. He proposed that there should be no further American-sponsored congresses until all the other active countries had served as hosts, and that each host institution should, like the NRC, have close ties to government, but should otherwise be autonomous, so as to avoid commercial or political entanglements. Finally, he suggested that Australia or New Zealand be the location of the second Congress (Gregory 1921*b*). Just as the IRC had grown from inter-Allied cooperation, so Gregory's proposal reflected the Anglo-American ascendancy—it was, in effect, an assembly of victors—in which both Australia and New Zealand were qualified members. The consensus within the NRC was that Japan, another ally in the Great War, would eventually host a third Congress, a further 3 years on.

In bidding for the second Congress, New Zealand was at first the most active voice. However, in May 1922, deteriorating economic conditions forced the government in Wellington to withdraw its offer of support (Andrews 1922*a*, Australasian Association for the Advancement of Science 1923 : xxii, Thomson 1924 : 328; A. D. Thomson, pers. comm., 29 June 1999). Fortunately, thanks to Andrews, the Australian Commonwealth and the state governments of New South Wales and Victoria stepped into the breech and voted £5000 toward the expenses of the Congress and the printing of its reports (Geddis 1922). The role of host fell to the Australian National Research Council (ANRC), a quasi-academy of scientists from all six Australian states, which was founded

in 1920 as Australia's adhering body to the IRC.

Since Federation in 1901, Australia had enjoyed only a brief experience of "national" science. This Congress was to be the first international scientific conference to be held in Australia since the British Association for the Advancement of Science (BAAS) had held its imperial meeting in Sydney and Melbourne on the eve of war in 1914 (MacLeod 1988). During the war, Australia served the Empire faithfully, and Australian scientists served with distinction. The coming of peace brought opportunities to enlist the federal government in the support of programs for national development. Led by Australia's leading Fellow of the Royal Society (FRS), Professor Sir Edgeworth David, a geologist knighted for his wartime services, and Professor (later Sir) David Orme Masson, a chemist, who was to be elected FRS in 1939, the ANRC became the principal medium through which the country's small scientific community presented itself to the public.

In 1922, however, the ANRC was just a year old. Its functions, as spelled out in its charter, were both broad and specific: to represent Australia in international science; to promote scientific research, through its 18 discipline panels; and to serve as Australia's de facto national academy of science. It could bring research problems to the attention of the universities and the Commonwealth Institute of Science and Industry (later, the Commonwealth Scientific and Industrial Research Organisation). However, its arrangements left much to be desired. It lacked permanent premises. It lacked a united, national voice. And it lacked a platform upon which its best work could be paraded. All these things, in one heaven-sent moment, the Pan-Pacific Congress bestowed. It was an opportunity that no one—including Edgeworth David, ANRC president (1921–1922), Antarctic hero, and war veteran—could resist.

In mid-June 1922, acting on behalf of the ANRC, Edgeworth David wrote Vernon Kellogg, inviting American participation in a Pacific Congress to be held in Australia during August or September 1923 (Walcott 1922). Simultaneously, he wrote to 19 other countries located in the Pacific or having Pacific colonies. The list included Bolivia, Canada, Chile, China, Colombia, Costa Rica, Ecuador, France (New Caledonia, Tahiti, the New Hebrides, French Indo-China, etc.), Great Britain (Fiji, Tonga, Samoa, the New Hebrides, Malay States, etc.), Guatemala, Honduras, Japan and the Mandated Territories in the Pacific, Mexico, The Netherlands (Java and the Netherlands Indies generally and Dutch New Guinea), New Zealand, Nicaragua, Panama, Peru, and Siam (Geddis 1922). Because travel expenses were to be paid by governments, invitations were sent through diplomatic channels—a process that took 6 months. In the United States, the invitation came to the State Department and Secretary of State Charles Evans Hughes via the British Embassy in early December 1922. The invitation went to the National Academy, whose president, Charles D. Walcott (secretary of the Smithsonian Institution), recommended that "every consideration" should be given to paying the travel of American scientists to Australia. There was a clear American interest in learning more about many things in the Pacific—not least, for those who remembered San Francisco in 1906, the factors that might affect the seismological stability of America's Pacific coast: "Earthquakes have occurred in California, Chile and Japan, and there are volcanic disturbances throughout the Pacific. The question is, What is their extent? This problem can be solved only by cooperative international effort brought about by bodies such as this" (Walcott 1922). As in Honolulu, geology was at the core of America's Pacific science.

To hold a meeting in August gave only 8 months to prepare. France chose not to send an official representative from Paris on the grounds that there was insufficient time to make arrangements (*Sydney Morning Herald* 1923*b*). The Dutch and British agreed to participate, notwithstanding the time. But it was the Americans who, among the invited guests, made the most of the occasion. The NRC's Committee on Pacific Investigations drew up a list of 39 institutions having an

interest in science in the Pacific, ranging from Ivy League universities and East Coast museums to the Hawaiian Sugar Planters' Association and the Philippine Weather Bureau. This list was forwarded to the NRC (Committee on Pacific Investigations 1922). By the middle of 1923, the Congress was taking shape.

ANTIPODAL OPENINGS

From the outset, scientists in Melbourne and Sydney agreed to share the work of organization and to invite delegates to both cities. The BAAS had followed a similar model of meeting in two places when it came to Australia in 1914, a model it had used in 1905 in South Africa, when sessions were divided between Capetown and Johannesburg. Accordingly, the Congress began in Melbourne, on 13 August 1923, with speeches by the prime minister, Stanley Bruce (standing in for the governor-general, Lord Foster, who had taken ill), and the Congress president, David Orme Masson. Masson welcomed delegates as representing 400 million people in the region, united in the hope of making the Pacific "truly Pacific" (Thomson 1924:331) (Figure 1). Sir Gerald Lenox-Conyngham, RE, FRS, conveyed greetings from the British government, the Royal Society, and Cambridge University (where he was reader in Geodesy). The Japanese delegation was led by Professor Count Joji Sakurai, vice president of the National Research Council of Japan, and a member of the Japanese house of peers, who remarked that never before had Japan sent so large a delegation (10 members) to any scientific congress in either Europe or America (Benson 1924:331) (Figure 2). Pieter van Romburgh brought greetings from the learned societies of The Netherlands. Political unity was achieved (Table 1).

After a day of diplomatic niceties came 7 days of scientific papers, organized into 11 specialist sections, ranging from anthropology to zoology (Table 2). These, too, followed the model of the BAAS, with specialist sections prevailing over the topical ("Hawaiian flora and fauna") and problem-oriented ("race relations in the Pacific") models that were the form in Honolulu. Overall, 427 papers were presented. In both Melbourne and Sydney, as at Honolulu, Geology and Geodesy/Geophysics together heard more than twice as many papers as any other section. Indeed, geology papers numbered 40% of the Congress total (Lightfoot 1923). (Of the 4000 papers presented at the first 10 Pan-Pacific and PSA Congresses [1920–1957], nearly a quarter [925] were in geology [see Rehbock 1988*b*].) Americans highlighted practical questions, such as the measurement of terrestrial magnetism, the study of earthquakes and volcanic activity, the description of ore deposits, Cenozoic stratigraphy, oceanography, hydrography, coral reefs, oil and water resources, and the conduct of aerial geological surveys. After Geology and Geodesy/Geophysics came Agriculture and Hygiene with 60 and 37 papers, respectively, and Forestry, at which the shortage of softwoods for building was much discussed. Speakers in Hygiene surveyed the distribution of disease, and C. J. Martin, the distinguished physiologist, spoke on climate and efficiency.

Academic movements between Melbourne and Sydney—never easy, at the best of times—were remarkably smooth during the Congress, thanks largely to the cordial relations between Masson and David. The Melbourne sessions raised administrative questions—for example, whether future congresses should include all fields of science or only those with a manifestly Pacific bearing—and resolutions. The most striking of these came in Anthropology, where several speakers alerted the world to the great and peculiar interest of the Australian aborigines, whose apparently inevitable decline and disappearance demanded urgent attention.

On 22 August the Melbourne program ended, and participants boarded trains for Sydney, where, the following day, E. C. Andrews welcomed them at Strathfield railway station. The ensuing civic reception saw British, American, Japanese, Dutch, and French colonial representatives united in believing science held the key to the problems

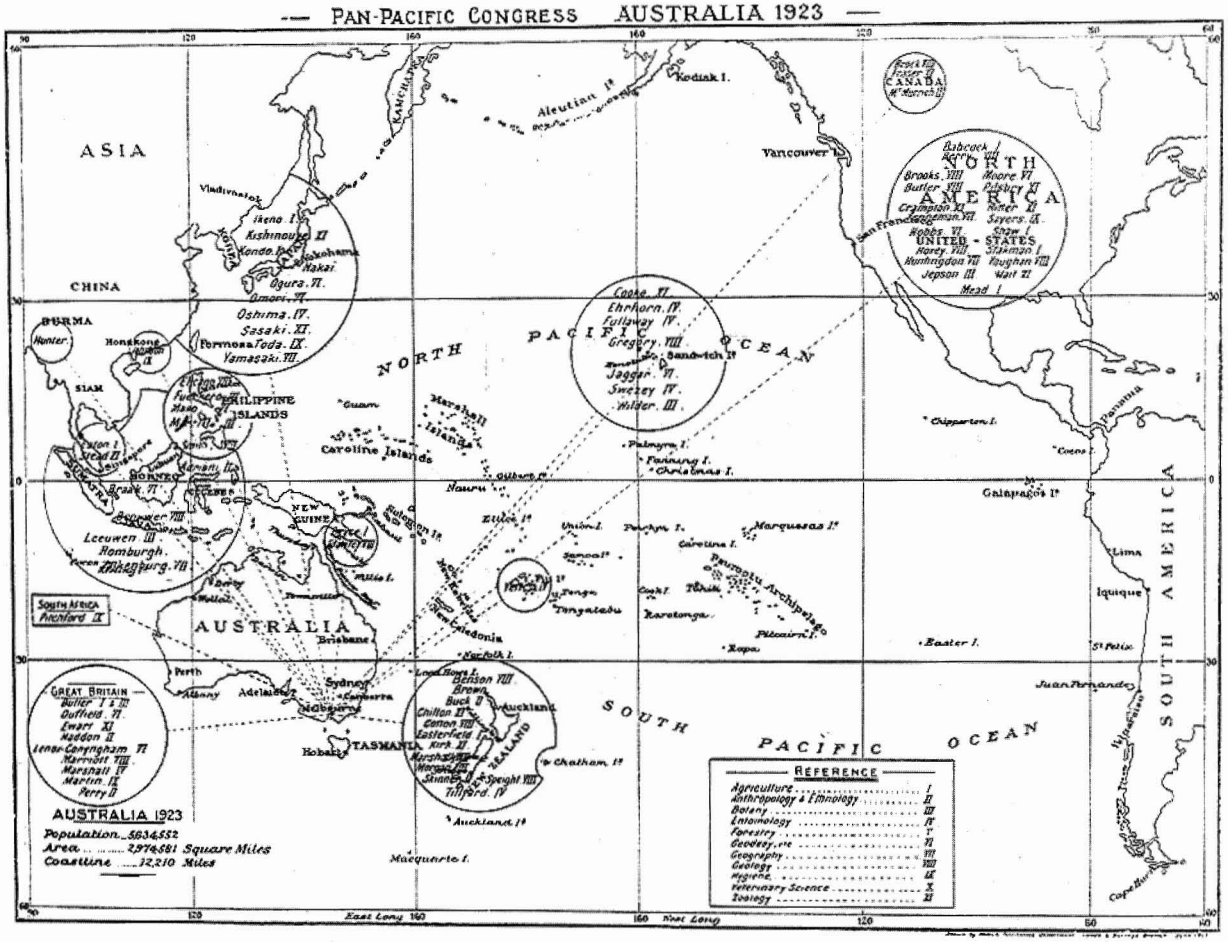

FIGURE 1. Countries of origin of delegates to the 1923 Pan-Pacific Science Congress. (Source: Pacific Science Association Archives)

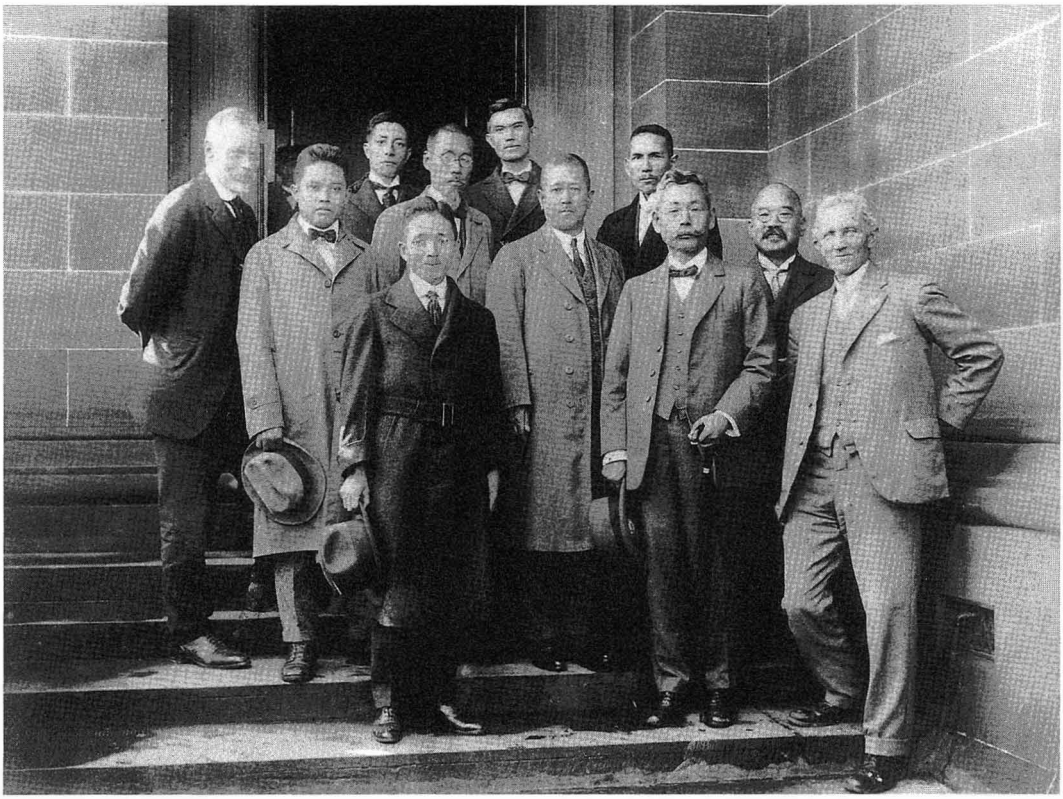

FIGURE 2. The Japanese delegation to the Pan-Pacific Science Congress visits the Australian Museum in Sydney. Charles Hedley (Principal Keeper) is on the far left and Professor T. W. Edgeworth David (University of Sydney) is on the far right. (Source: Australian Museum Photographic Archives M1902/3)

of the region. Sydney's *Daily Telegraph* had foreshadowed this theme in welcoming the Congress as an opportunity to develop a "Pacific consciousness" among transplanted Britons. "Australia does not think sufficiently in Pacific terms," it argued (*Daily Telegraph* 1922:8), but if the matter were left to the United States, this indifference would surely disappear. Certainly, the American presence was made felt by the scheduled, simultaneous arrival in Sydney Harbour of the cruiser USS *Milwaukee,* which was equipped with sonic depth-locating devices derived from anti-submarine hydrophones that the NRC had developed during the war (*Sydney Morning Herald* 1923*b*:8, 1923*e*:9).

The inaugural sessions on 24 August were held in the Great Hall of the University of Sydney. The governor of New South Wales, Sir Walter Davidson—in a speech possibly prepared by Edgeworth David and certainly delivered with his help—gave a brief history of the congresses, spiced with tales about Herbert Gregory's encounters with Navaho Indians during his days as a water prospector in the American West (Figure 3). The scientific sections were again set in motion, as scientists weighed the prospect of white settlement in the tropical north and the future of Australia's indigenous peoples. Edgeworth David expressed the hope that "with the help of science we can save our Australian Aborigines" (*Sydney Morning Herald* 1923*b*:8). He then spoke on coal measures, and

TABLE 1

CONGRESS PARTICIPATION BY NATIONAL ORIGIN OF REGISTRANT

COUNTRY	HONOLULU 1920	AUSTRALIA 1923	SYDNEY 1999
Australia	7	320	257
Canada	1	3	7
China	1	0	6
Hawai'i	46	6	(included in U.S.)
Japan	4	10	27
New Zealand	3	13	24
Philippines	4	5	3
United Kingdom	1	12	3
United States	36	17	45
British Malaya	0	2	1 (Malaysia)
Fiji	0	2	0
Hong Kong	0	1	4
India	0	1	2
The Netherlands	0	2	0
Netherlands East Indies	0	3	1 (Indonesia)
New Guinea	0	1	3 (Papua/New Guinea)
Papua	0	1	(see New Guinea)
Tahiti	0	1	2 (French Polynesia)
Austria	0	0	1
China (Taiwan)	0	0	10
France	0	0	2
Germany	0	0	4
Guam	0	0	5
Korea	0	0	2
New Caledonia	0	0	3
Panama	0	0	1
Russia	0	0	1
Samoa	0	0	6
Sweden	0	0	2
Thailand	0	0	19
Vanuatu	0	0	1
Total (Overseas)	103 (57)	400 (80)	442 (185)

the controversial geographer Griffith Taylor spoke on the need for soil surveys in Australia's arid regions.

International speakers had a good press (Figure 4). Extensive daily coverage brought the Congress to a wider audience than science had enjoyed in Australia since 1914. Among the British, W. J. Perry of the University of London, distinguished for his work in Egypt, lectured on the migration of native peoples. Leading American speakers included Major W. Bowie, director of the U.S. Geological Service; Ellsworth Huntington, who spoke on the desert peoples of central Asia; and E. C. Case, professor of geology at the University of Michigan, who spoke on Permian vertebrates. Questions of political economy—e.g., the establishment of international standards for radio, the future of aviation, and the prospect of tropical settlement—were featured prominently by Sydney leader writers (*Sydney Morning Herald* 1923*d*: 8). Registered participants numbered about 400, about four times the number at the Honolulu Conference, and attendances at some sessions exceeded a thousand (Gregory 1924*a*: 280).

From the outset, Sydneysiders were impressed by the "singleness of purpose, the unity of this heterogeneous force out of which science, knowing no geographical boundaries, knowing nothing of racial differences, has

TABLE 2

Congress Participation by Scientific Discipline (Number of Papers, as Listed in Proceedings)

Discipline	Honolulu 1920	Australia 1923
Agriculture		60
Anthropology/Ethnology	9	25
Botany	13	25
Entomology	3	28
Fisheries	6	
Forestry		13
Geodesy/Geophysics	26	39
Geography/Oceanography	18	33
Geology	35	135
Hygiene		37
Meteorology	5	
Scientific institutions	14	
Veterinary science		9
Zoology	11	23
Total	140	427

evolved" (*Sydney Morning Herald* 1923*c*: 15). In the equally high-sounding words of Sir George Knibbs, director of the Commonwealth Institute of Science and Industry, the Congress was more than a meeting of scientists—it was "an event of great national and international importance" (*Sydney Morning Herald* 1923*a*: 15). As at BAAS meetings, participants were offered scientific excursions, guidebooks with maps and illustrations, and historical, botanical, zoological, and geological information. Sydney featured special trips to the Blue Mountains. Perhaps unique was the decision to have every foreign delegate personally hosted by an Australian family (De Vries 1930). Personal contacts extended even to religious observances, a memorial service for President Harding in Sydney's Anglican cathedral, and a memorial in tribute to the many lives lost in a recent earthquake in Japan (Thomson 1924: 335).

Taking both cities together, overseas speakers numbered about 80, including 10 from Japan, 12 from Britain, and 17 from the United States (including 7 appointed by the U.S. government). The Netherlands sent five representatives, including Dr. Cornelis Braak, a meteorologist from Leiden; Hendrik Brouwer, the influential geologist from Delft; Willem Docters van Leeuwen, a specialist on the natural history of Indonesia; and Pieter van Romburgh, professor of organic chemistry in Utrecht and the representative of the Koninklijke Akademie van Wetenschappen. There were 13 representatives from New Zealand, including Dr. J. Allan Thomson, Dr. P. Marshall, and Professor H. B. Kirk (representing the New Zealand Institute), who, mindful of their impecunious government, cited the "material advantage [that] will result to Australia from the liberal subsidy that made the holding of the Congress possible" (Kirk 1924: 771). Among the "locals" were 21 representatives of Australian institutions and 18 resident representatives of overseas institutions. All members of the ANRC were deemed ex officio members.

THE OUTCOME

"It is scarcely to be expected that congresses of the kind will receive many, or any, highly important original contributions to science," A. C. D. (later Sir David) Rivett, chairman of the ANRC, told the worldwide readership of *Nature* in October 1923 (Rivett 1923: 636). Yet, for both Pacific science and for science in Australia, the Congress was to have cardinal significance. Internationally, it created what A. P. Elkin called "a structure for cooperation" (Elkin 1961: 21). If the Conference in Honolulu had been an adventure, organized along individual and commercial lines, the Congress in Melbourne and Sydney laid the foundations of a permanent organization, dedicated to a wider trade in ideas. Moreover, it established the principle of bringing into "friendly personal and scientific relations the whole of the peoples who have interests in or bordering on the Pacific, so that all subjects of common interest to Pacific peoples will be under common and systematic review . . ." (Knibbs 1923: 22).

Finally, the Congress brought to the fore the idea that science was the essence of the "Pacific sense." The overall image constructed by David, Masson, Andrews, and their colleagues was nothing less than a sci-

PAN-PACIFIC SCIENCE CONGRESS.

Sessions Begin at the University.

INAUGURAL ADDRESS BY SIR WALTER DAVIDSON.

"PROBLEMS THAT BESET MANKIND."

The Sydney meetings of the Pan-Pacific Science Congress were opened in the Great Hall of the University yesterday, his Excellency the Governor delivering the inaugural address.

His Excellency emphasised the influence of the Congress in the application of science to the uplifting of humanity, and in the promotion and maintenance of harmonious relations in the Pacific.

Sectional meetings dealt with a number of scientific problems. the engagements at night including a public lecture and a reception to delegates.

NOTABLE GATHERING.

The Congress, which was opened in Melbourne, marks the second great gathering of its kind, the first having bee. held in Honolulu in 1920. These congresses aim, primarily, at promoting the study of scientific problems of common interest, and at co-ordinating, in a practical way, the work of scientists. They form part also of a broader general plan, aiming at the maintenance of harmonious relations among all the countries within and bordering the Pacific region.

It was a notable and impressive international gathering that assembled in the historic Great Hall of the University for the formal opening of the Congress in Sydney, and was afterwards distributed, in sectional meetings, in the scattered schools and departments of the University. Here one saw, linked in the common bonds of science, savants distinguished in every field of scientific endeavour in the old world and the new. His Excellency the Governor welcomed them, not merely as leaders of science, but as "ambassadors of goodwill." Great Britain, the United States of America, along with Honolulu and the Philippines, the dominion of Canada, Japan, and Formosa, the Netherlands, the great Pacific groups, and Australia and New Zealand, with their hundreds of millions of people, were all represented in this historic gathering. Here one saw absorbed and merged in the investigation of the problems of the phenomena of the world, and having as their common aim the uplifting of humanity through science, all the differences of race and of tongue—men who have hardly left

THE PACIFIC.

Regional Structure and Life.

The business session of the congress was opened in the morning by a general discussion on "the structure of the Pacific region, and its influence on animal and plant life." Professor David presided, and Mr. E. C. Andrews commenced the proceedings with an explanation of the geographical features of the ocean.

The Pacific Ocean, he said, was 10,000 miles in length, from Behring Straits to Antarctica, and 10,000 miles across the equator, and had a total area of 68,000,000 to 70,000,000 square miles. Its eastern part was more compact than the western, the latter being very much broken up with islands, seadeeps, and trenches, while the eastern portion was mostly regular. Around the ocean there was a series of great ocean deeps, in parts 26,000ft deep, which roughly corresponded to the configuration of the lands bordering the ocean. There was also a great run of earthquake zones parallel to the run of deeps, and inland from the earthquake zones lay a great line of volcanoes, backed in its turn by a line of plateaus. There was a great geographical unity, but there was also a tremendous force trying to force that symmetry aside, and establish a zone of equatorial weakness. A study of the plateaus suggested that they were of one age, the closing tertiary, only a little time ago, as geologists counted time.

The Pacific had been a great unity for possibly one thousand millions of years, said Mr. Andrews. The distances in olden times had been too great to fight across, but now we had annihilated space, he trusted that harmonious relations would be maintained between the peoples facing the great ocean. (Applause.)

SEISMOLOGICAL STUDIES.

With regard to geophysical investigation the Pacific showed a great variety, said Dr. Fusakichi Omori. It was the most extensive zone of earthquakes and volcanoes. One of the most important principles in seismology

OPENING CEREMONY.

Notable Speeches.

Professor Sir Edgeworth David, one of the vice-presidents of the Congress, presided. He was supported on the platform by his Excellency the Governor (Sir Walter Davidson), who was attended by Mr. Blandy, the Premier (Sir George Fuller), the Vice-Chancellor of the University of Sydney (Dr Purser), the Vice-Consul for the United States (Mr. P. Harley Moseley), Captain Asserson of the visiting U.S. warship Milwaukee, the Warden of the University (Mr. H. E. Barff), and Mr. G. Lightfoot, of the Commonwealth Institute of Science and Industry, Melbourne, and secretary of the Victorian sittings of the Congress.

His Excellency the Governor, in the inaugural address, said that they, the youngest nation of the Pacific and of the world, bore themselves proudly that day because of the notable council gathered to their shores, ambassadors of goodwill, to be their honoured guests. (Applause.) In eloquent terms, his Excellency welcomed in turn the delegates from the different countries, and then proceeded to trace the outstanding events which culminated in this great international gathering, finding its origin, he said, in the meeting of the British Association for the Advancement of Science held in Australia in 1914. His Excellency spoke of the many famous men who would add to and advance the work of the scientific pioneers of the Pacific, and emphasised the point that the leaders of science at the Congress represented some four hundred millions of peoples from around the shores of the Pacific, as well as the many millions of people of other countries. There were also present some 500 members representing the Commonwealth of Australia. His Excellency expressed the hope that at future congresses representative scientists would be present also from France, China, and the States of Central and South America. The Congress, he said, was destined to rank as a remarkable achievement in the international co-operation of science.

FIGURE 3. The *Sydney Morning Herald* (25 August 1923) announces the opening of the Sydney portion of the 1923 Congress.

FIGURE 4. Impressions of delegates to the 1923 Congress drawn by H. G. Wells. (Source: Pacific Science Association Archives, Box 1)

entific "League of Nations," admittedly an association of former allies, but one that transcended colonial and national rivalries. It was not yet representative of the Pacific islands, but it was a step toward uniting the region. It was, moreover, a regional application of the global ideal, popularized by the BAAS, an institution dear to Anglo-Saxon scientific practice, and a way of embracing all fields of knowledge while giving equal time to each specialty. The convivial and collegial atmosphere associated with the BAAS was essential to the message of Pacific unity.

Overall, the large American presence was particularly significant. As Gregory had correctly foretold, a relatively small investment produced considerable diplomatic returns. The Congress lent a new dimension to American-Pacific relations, at a significant moment in international scientific affairs. By sending a strong delegation, stronger even than that of Britain, Americans signaled an increasing interest in the region. Notwithstanding its many attachments to Europe, American science was hereafter to enjoy a greater visibility and prominence in the Pacific, on both sides of the equator (Vaughan 1925).

Among the many resolutions passed on the closing day of the Congress, administratively the most important was moved by T. Wayland Vaughan: that a permanent organization be created, its membership drawn from the invited countries (Australia, Canada, Chile, France, Britain, Japan, The Netherlands, New Zealand, the Philippines, and the United States), and that a committee be set up to draft a constitution for approval at the next Congress (*Sydney Morning Herald* 1923*g*, Gregory 1923). At the same time, the

Congress accepted a previously foreshadowed invitation from Japan, which had committed £23,000 to hold the next meeting in Tokyo in 1926. Such a gesture of respect was appropriate for a wartime ally. But the acceptance of Japan also signaled international approval of liberal tendencies among Japanese scholars and scientists, which would be assailed in the coming decade (Akami 1994, 1998, Meaney 1999). Science would help secure what Joji Sakurai, the Japanese representative, called a "permanent and absolute peace" (Elkin 1961 : 31). Over the next 3 years, the new constitution was discussed, and it was eventually adopted at the third Congress, held in Tokyo, on 11 November 1926. At that Congress, the prefix "Pan" was dropped, and the Pacific Science Association was born.

Beyond its importance to the Pacific, the Congress of 1923 was of special significance to Australia. Quite apart from bringing many colleagues to Australia's shores, the Congress was a massive triumph for the protagonists of "federal science." The Congress gave the ANRC its first public platform and its first significant opportunity to speak to government with an assembled voice. It also showed the Australian public that Australian science held a respected place in the world. In 1914, in welcoming the BAAS, Australia was a loyal member of the Empire. But in 1923, Australians, although not turning away from Britain, began also to look toward the United States, across the Pacific, and also inward, into the heart of their vast continent, about which so little was yet known. As such, the Congress stressed the urgency of federal assistance to scientific enquiries that Australian scientists had been advocating since the 1870s (MacLeod 1988).

Across the spectrum, resolutions came. Botany, Agriculture, and Forestry called for federal support for comparative soil surveys, the protection of native flora, the preservation of forests and reforestation, and the study of timber-boring insects. Entomology pressed for a new Federal Bureau of Entomology, to study insect pests and their economic consequences. The Geodesy and Geophysics section urged the Commonwealth, "no longer a colony," to "take up her fair share" of the world's work in terrestrial magnetism and geophysics, from "both economic and defense points of view" (Rivett 1923 : 636). The same section called for the establishment of a Geodetic Survey of Australia and a Commonwealth Solar Physics Observatory, both of which eventually came into being. The Geography and Oceanography section asked government to contribute to international efforts in hydrography and meteorology, and Hygiene wanted improved preventive medicine and environmental health measures in the Tropics. If Australians were to populate the "Deep North," a governing assumption of the hour, science was to be their instrument and tool (MacLeod and Denoon 1991).

Herbert Gregory, patron and counselor, saw the Congress of 1923 as a welcome sign that the future of the Pacific was being increasingly placed in the hands of scientists. The Congress, Gregory told the General Assembly, was "nothing more nor less than a gigantic experiment ... to bring governments, institutions and individuals to effective harmonious cooperative agreement in attacking all the great problems on which the welfare of mankind depend." Gregory saw the experiment producing a "conservation congress in which the fundamental problems underlying the development of resources were discussed by an unusual group of competent scientists" (*Sydney Morning Herald* 1923*f* : 13).

In fact, science in Australia was acquiring a reformist image familiar to progressives in the United States and Britain (MacLeod and MacLeod 1976). Gregory and many Australians noted that "the scientific problem of the Pacific which stands first in order of urgency is the preservation of the health and life of the native races" (Gregory 1924*a* : 278, 279). It was this, more than any other issue, that commanded attention from the Commonwealth government, conscious of its new League of Nations responsibilities in Papua New Guinea and increasingly concerned for Aboriginal welfare. The Congress' several sessions on oceanic migration and cultural distribution discussed what appeared to be the imminent demise of native populations,

and the corollary need to study them before they disappeared. As A. C. Haddon (1924: 29) wrote, Australia urgently needed a university chair of social anthropology and courses on anthropology with geography and anatomy for government officials and missionaries. In this, the Congress was successful. The Commonwealth government agreed to contribute £1000 toward a chair of anthropology at the University of Sydney, which was established in 1925 (Anderson 1925, Watt 1926). Appropriately, A. P. Elkin, the unofficial historian of the PSA, was to be its first incumbent (Wise 1985).

CONCLUSION

From its highly individual beginnings in Honolulu in 1920, to its more collective manifestation in Sydney and Melbourne in 1923, the "pan-Pacific" movement in science gathered momentum and achieved recognition. For those who, like Gregory and Andrews, sought to cultivate a "Pacific sense" among nations, the Australian Congress of 1923 was a harbinger of things to come. It gave evidence of a more systematic Pacific dimension emerging in American science. It displayed and encouraged European science in the region. It heralded a strategic, "federal" vision for science in Australia. But above all, it "was destined to rank as a remarkable achievement in the international cooperation of science" (Elkin 1961: 25). For the next 80 years, Pacific Science Congresses would strive to achieve a similar combination of commitment to both national goals and internationalist ideals. The theme of unity, the dedication to the "Pacific sense," would be played out time and again, in the interests of peace and prosperity and in the service of science and humanity.

ACKNOWLEDGMENTS

We express our appreciation to the organizers for an opportunity to participate in the wider work of the Congress. For their generous assistance with references, illustrations, and documentation, we record warm thanks to Dr. A. D. Thomson of Christchurch, New Zealand, and Dr. Lodewijk Palm of the University of Utrecht; Ms. Jan Brazier, Manager, Archives and Records, Australian Museum, Sydney; Mr. Tim Robinson and Ms. Renata Mancini, Archives, The University of Sydney Archives; Ms. Shona Dewar, La Trobe Library, State Library of Victoria; Ms. Janice Goldblum, Archivist, U.S. National Academy of Sciences; and Dr. Lu Eldredge, Secretariat, Pacific Science Association.

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