

Late-Victorian science knowledge

Recorded in early essays of the *Journal & Proceedings of the RSNSW*

by Davina Jackson

The RSNSW's 2021–2022 bicentennial commemorations include a long overdue project to compile an author-alphabetical and chronological bibliography of publications by members and fellows — beginning with papers in the first 20 annual editions of its *Journal and Proceedings*.

Citations of 316 papers by 91 authors — from 1867 to 1887 — have been listed so far, and these reveal fascinating nuances about the culture of research, thrusts of discovery, and relations among leading scientists during the New South Wales colony's gold boom decades.

By far the most prolific essayist was the Sydney Observatory-based astronomer and meteorologist Henry Chamberlain Russell, who published 60 papers in volumes 3–20, including annual rainfall maps and monthly weather observations taken atop Observatory Hill. He also analysed floods of the Darling River and Lake George, how rain evaporated from paddocks, and telescope-viewed astronomical phenomena, including double stars and Transits of Venus, Mars and Saturn.

Another prominent writer was the University of Sydney's Professor of Geology and Mineralogy (and ultimately Professor of Chemistry), Archibald Liversidge, who wrote four papers on NSW minerals and meteorites in the annual *Transactions of the RSNSW*, before he began to edit the publication in 1875 and changed its title to *Journal and Proceedings*. Liversidge also served as the society's Honorary Secretary from 1874 to 1884, and he designed the Seal required for its NSW Government Act of Incorporation in 1881.

English pastor and geologist William Branwhite Clarke published 15 papers in the journal between 1867 and 1878. These included the RSNSW's Inaugural Address, in which he argued that science, with its focus on factual evidence, was superior to the philosophy promoted by preceding NSW intellectual societies. He later published six Anniversary Addresses and research reports on minerals in north Queensland, fossils of kangaroos and extinct birds, ocean depth soundings, and some effects of forests on Australia's climate.

During Liversidge's term as the journal editor, English science educator William Adam Dixon wrote a series of worthy articles on chemistry, mineralogy and palaeontology: highlighting islands of sea-bird guano, NSW deposits of silver, nickel, cobalt and coal, and chemical aspects of orchids, ferns and native coastal species. Other writers on Australian fossils, rocks, minerals, shells, fish, fauna, plants and forests included William James Barkas, Robert Etheridge Junior, Australian Museum curator Johann Ludwig Gerard (known as Louis) Krefft, assayer Carl Leibius, botanist Charles Moore and priest-geologist Julian Edmund Tenison-Woods.

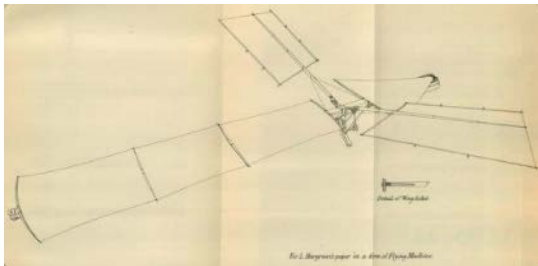
Liversidge also encouraged articles about Aboriginal knowledge and culture. He published Peter MacPherson on Aboriginal astronomy, language, oven-mounds and stone implements; Peter Beveridge on Aborigines of the Murray-Darling basin; and 'Notes' by John Fraser and James Manning. These followed *Transactions* articles on Polynesian and New Guinea populations, reported by Scottish educator John Dunmore Lang.

Late-Victorian science knowledge (cont'd)

Despite the RSNSW's stated objectives to further knowledge in Science, Philosophy, Art and Literature, no articles on philosophy or literature, and only a few on arts and crafts, were published in the first 20 years of the journal. These included: several papers by Ludovico Wolfgang Hart on 'the rise and progress of photography' as a matter of importance to Australian education; John Plummer on art instruction; Italian pianist Jules Meilhan on the transformative power of classical music; Emerich Reuter Roth on rational construction of chairs and desks; and William Henry Warren on the strength and elasticity of ironbark timber for construction projects.

As the gold boom boosted Australia's population and prosperity, Liversidge introduced some far-sighted concepts for public welfare, infrastructure and economic development. Frederick Norton Manning, director of the asylum at Gladesville, illuminated journal readers on 'causes and prevention of insanity', while Alfred Roberts discussed 'pauperism' and hospital accommodation. Engineers James Manning, Charles Mayes, John Smith and A. Pepys Wood wrote on how to improve the colony's water supply and sanitation. NSW Auditor-General Christopher Rolleston assessed crime statistics and new post office, banking, credit and insurance systems.

Several RSNSW writers presciently highlighted nascent technologies that would underpin modernity through the 20th century: Edward Charles Cracknell highlighted international advances with the 'electric telegraph'; George Denton Hirst focused on new optical lenses made by Carl Zeiss (Zeiss) in Germany; and Lawrence Hargrave presented his prescient ideas and designs for 'flying-machines'.



Lawrence Hargrave's late-1880s design for a flying machine (pencil sketch)

Hargrave's first *RSNSW JProc* articles were published in 1885 and 1886 — 17 years before American inventors Orville and Wilbur Wright flew the world's first successful motorised aeroplane in December 1903. Yet Hargrave was only one example of how many young, well-educated British immigrants pioneered worldwide advances after they resettled down under in the mid-19th century. The Royal Society of New South Wales, via its annual *Transactions* (then *Journal and Proceedings*), was a vital conduit for their intellectual pursuits.

Robert Clancy, historian, map collector, and Emeritus Professor in Immunology, has compiled an extensive volume [*The Long Enlightenment: Australian Science from its Beginnings to the Mid-20th Century*](#) (Halstead Press, 2021) about the early years of the Society and the work of colonial sciences which may be of interest to readers. You can obtain a copy through the Royal Societies of Australia via this [link](#).

