

# **‘Laudably communicating to the world’: Science in Sydney’s Public Culture, 1788–1821**

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**Abstract:** It has long been held that the general population of the British colony of New South Wales prior to the 1820s was neither exposed to nor interested in science, and that there was little homegrown science in Sydney at this time. This prevailing view, however, is based on a definition of science as institutionalised knowledge producer. In this paper I examine the Sydney colony between 1788 and 1821 through the lens of recent historiographical developments that have redefined science as a form of communicative action, and that incorporate the study of popular discourse centrally within histories of science. Under this approach, an examination of Sydney’s mass media and popular culture reveals a widespread, rich and invested fascination with science among the colony’s general population, and active contributions to public science discourse by ordinary colony residents.

## **Introduction**

For the first 50 or more years in a convict emancipist society, the community in general proved indifferent to science.

—Ann Moyal, *A Bright and Savage Land*<sup>1</sup>

If science provided the specific ideology through which the hegemony of the upper classes was maintained, the convicts or their offspring stood in little danger of absorbing its tenets for, so far as records show, they did not encounter them.

—Sybil Jack, ‘Cultural Transmissions: Science and Society to 1850’<sup>2</sup>

If the 1980s work of prominent Australian historians Ann Moyal and Sybil Jack is to be accepted at face value, science was non-existent in Sydney before the 1820s, or was restricted to a few elite specialists, primarily European explorers and natural history collectors. Their conclusion has been broadly supported by others.<sup>3</sup> For example, *Historical Records of Australian Science* has published fewer than ten papers that discuss Sydney prior to the 1820s, all of which concern explorers or natural history collectors, or briefly mention early astronomical observations,<sup>4</sup> and John Gascoigne and Sara Maroske's 2013 overview of colonial science largely covers the same range of topics.<sup>5</sup> Yet this prevailing view defines 'science' in a particular way—as primary scientific research or formal scientific institutions—that is no longer considered the whole story by many historians of science. In this paper I will challenge the prevailing view through an examination of science in Sydney's public culture between 1788 and 1821, revealing a higher level of public engagement with science than has hitherto been documented.

The conception of 'science' as primary research or formal institutions is one of two premises that helped lead Moyal and Jack to their conclusion that Sydney residents were indifferent to science. The other is the notion that 'science' should be distinguished from 'the practical'; a notion that manifests principally in a contrast between science and agriculture.<sup>6</sup> Seen from this perspective, it is reasonable to argue there was little homegrown science in the Australian colonies until the 1820s or beyond. The most commonly referenced evidence for this is the fact that the first local scientific body, the short-lived Philosophical Society of Australasia, did not form until 1821, and totalled no more than 15 members, most of whom had no scientific training.<sup>7</sup>

This is not the only way to study the history of science, however. For one thing, to differentiate sharply between ‘pure science’ and the ‘useful arts’ is now considered anachronistic, though it was not unusual for twentieth-century studies in science history.<sup>8</sup> In the context of plant science, Jim Endersby argues that ‘[d]uring this period the differences between activities such as agriculture, commercial and scientific plant-collecting, horticulture and botany were still largely undefined.’<sup>9</sup> Accordingly, Gascoigne and Maroske give extensive attention to agriculture in their overview of colonial science and technology, so in this respect historical study of Australian science has changed since the 1980s.<sup>10</sup>

Moreover, to characterise science solely in terms of research and institutions is to sideline an element increasingly seen as important: the history of public discourse about science. Moyal and Jack did not completely ignore this—indeed, Jack documented some popular culture phenomena in Sydney related to science—but the models of science they were working with were institutionally oriented, so popular culture was not considered central to the story of science.<sup>11</sup> Again this is a reasonable approach given the framework they used, and a critical mass of scholarship on the history of public science discourse only emerged after Moyal and Jack wrote their words quoted above.

Yet some of that more recent scholarship presents a radically different way of thinking about science.<sup>12</sup> In an influential 2004 paper, James Secord encouraged historians to ‘understan[d] science as a form of communication,’ and posited that the central question for the history of science was: ‘how and why does knowledge circulate?’<sup>13</sup> Secord’s

emphasis on the ‘processes of movement, translation, and transmission’ of knowledge has been taken up by other science historians, who have similarly shifted away from demarcating ‘science’ solely as knowledge *producer*.<sup>14</sup> For example, Faidra Papanelopoulou and colleagues, the editors of a 2009 collection about science and technology in post-1800 Europe beyond its western, metropolitan centres, argued:

In the end, perhaps the history of science and technology in the European periphery is mainly the history of the communication practices—teaching and popularization—of local experts, who appropriated the great names and ideas from the centres, communicated their knowledge through local publishers in their local contexts and constituted our main primary sources for science and technology.<sup>15</sup>

This raises a question about science beyond Europe, including in the British colony of New South Wales. Did Sydney’s history of science too, at least between 1788 and 1821, fit this ‘periphery’ model of science, dominated by the *communication* of knowledge? Jack argues that although many colonial elites, including governors, possessed a high level of scientific knowledge through their correspondence with people like Joseph Banks, they did not communicate it to the general Sydney population because of the pressures of running a penal colony, and fears that science might prove a subversive influence.<sup>16</sup> She also makes the point that formal education was very elementary in the colony.<sup>17</sup> As I will show, however, the elite class and schools were not the only sources of scientific information. Colonial mass media and popular culture also communicated elements of science, in many cases by borrowing from mass media and popular culture in Britain.<sup>18</sup> When science is viewed in this light—as public discourse rather than institutionalised research or top-down transmission—it is not possible to sustain an argument that the general population was indifferent to science. On the contrary,

studying the colony's public culture reveals a weighty and invested fascination with science.

### **Science, Communication and 'the Public' around 1800**

This paper's study period is bookended by the arrival of the First Fleet in 1788 and the establishment of the Philosophical Society of Australasia in 1821. While the Society was a small, elite organisation, it was a sanctioned civil institution within the colonial administration, and in 1822 invited incoming governor and amateur astronomer Thomas Brisbane to be its president.<sup>19</sup> As such, its advent marked a new and more institutionalised phase in Australian science. The following years saw other important civil changes in New South Wales: the larger and longer-lived Agricultural Society of New South Wales was founded in 1822, and in 1824 the Legislative Council was instituted and gubernatorial press censorship lifted.<sup>20</sup> All these factors had a significant impact on Sydney's public culture scientifically, politically, and in terms of public communication. Therefore, this study will finish at 1821, prior to these critical transitions.

One critical transition relevant to this paper occurred within the period too. The first 13 years, 1788–1801, were characterised by the absence of a formal publishing culture in the colony. Much history written about Sydney of that time has relied upon private writings, such as letters, journals and diaries, or memoirs published in Europe. This shifts for the next twenty years, 1802–21, because 1802–3 saw the advent of formal book and periodical publishing in Australia, changing the evidentiary landscape for studying Sydney's public culture.

This second part of the study period also contours the tenure of Australia's second and most well-known government printer, the convict (soon emancipated) George Howe. Howe is such an iconic figure in Australian publishing that a window in Sydney's Mitchell Library is devoted to him. He took over from the little-known first government printer, George Hughes, between 1800 and 1802, and occupied the role until his death in 1821.<sup>21</sup> While Hughes printed only government orders, forms and the occasional broadside or playbill,<sup>22</sup> Howe's work included many 'firsts' in Australian publishing:

- 1802: the first book;
- 1803: the first weekly newspaper;
- 1806: the first annual periodical;
- 1813: the first illustrated book;
- 1819: the first poetry book; and
- 1821: the first monthly magazine.

Significantly for this study, all these initiatives aside from the 1802 book were enriched by extensive engagement with science-related subject matter.

Beyond the Australian context, this period is of interest because the late-eighteenth to early-nineteenth centuries was when modern, western science was 'invented': when strands of natural philosophy, natural history and mathematics were institutionalised and transformed into 'science' as we currently conceive of it.<sup>23</sup> In addition, it was the time when the 'public sphere' that had begun to emerge during the Enlightenment was consolidated.<sup>24</sup> As a part of these trends, the 'public' and the 'professional' within science began to separate at this time: the idea of the professional scientist arose, the era of the so-called 'gentleman amateur' declined, the notion of an inexpert public developed, and the phenomenon of science popularisation—the perceived need to

communicate science from experts to lay people—was born.<sup>25</sup> Overlapping with these developments were various manifestations of more participatory engagement with science by ordinary people that challenged the emerging ‘professional expert versus ignorant lay person’ model of the science-society relationship. For example, Katherine Pandora writes about working-class people in the antebellum United States discussing new scientific ideas without waiting for the expert voice.<sup>26</sup> Public communication about science boomed in Paris and London at this time in both popularising and participatory ways, their streets, homes and public buildings flooded with science-themed popular books, public lectures, street spectacles and night classes.<sup>27</sup>

All of this amounts to an extremely important period for understanding science as communication. As Bernadette Bensaude-Vincent puts it in her history of the idea of an expert-lay gap, ‘the distance between the learned and the rest [...] is a key ingredient of the definition of science itself.’<sup>28</sup> Accordingly, Secord argues that studying science at this boundary ‘between expert, esoteric knowledge and the exoteric knowledge found in textbooks and simplified redactions’ contributes critically to the larger picture of the history of science.<sup>29</sup>

As such, a considerable amount of research has documented science communication in Europe and elsewhere during this time, particularly in Britain and France.<sup>30</sup> But little has been written about science communication in colonial Australia. Most scholarship about science communication in Australia has focused on later periods,<sup>31</sup> or has emphasised private, official communication between scientific elites,<sup>32</sup> rather than communication in the public sphere within the growing colony. It is that ‘within colony’

arena of public communication and public culture that this paper discusses, focusing on mediated communication among ‘lay’ people and participatory leisure activities, such as natural history collecting, painting, poetry, performance, and periodicals.

### **Engagement with Science through Leisure Activities**

The works published by George Howe during the period provide the richest veins to mine, but science manifested in the colony’s public culture in other ways too, and these are most important to consider prior to the publishing era. There are limits to our understanding of public culture in that place and time because of its largely ephemeral and unwritten nature. As Grace Karskens vividly describes, colonial communication was largely non-written despite the partial literacy of many residents:

[I]nformation and news was visual, oral and aural, carried by flags and pictures, word of mouth and sound. The town crier shouted the latest decrees from Government House, the constable bellowed the hours of the night from dark streets. People were called to their labour by the beating of the taptoo drums, to church services by the bells at St Phillip’s, to the shoreline and arriving ships by the boatswain blowing his ‘long wishful call’ across the water.<sup>33</sup>

Many of the colony’s prominent leisure activities also involved pleasures of the voice and body rather than the written word, such as fairs and wakes, sports, blood sports, alehouse recreations, elite-organised balls and feasts, and outdoor activities like swimming, boating, fishing, shooting and bushwalking.<sup>34</sup> None of these are well documented for historical study. Nor do they carry immediately obvious associations with scientific discourse, which may have added weight to Moyal’s and Jack’s contention that the early colony was largely uninterested in science. Thinking more laterally though, it is likely that conversations took place about animal breeding and behaviour, to enhance the pleasures of cockfighting, horse racing and fishing. Related to



that, Karskens documents the extensive sharing of what we might classify as scientific or technical knowledge between Eora and non-Indigenous residents of the colony: information about animals, plants, food, medicine, healing, birthing, and materials and methods for building, hunting, fishing and harvesting natural resources.<sup>35</sup> Karskens notes that by 1803 there were everyday reports of European and Indigenous people hunting together, and as early as 1790 a convict rope-maker was making Eora-style rope fishing lines for the colony.<sup>36</sup> The Eora also created new words for European technical instruments, such as '*naa-moro* (or *murru*) for compass, meaning, literally, to "see the way"'.<sup>37</sup> All of this suggests that the everyday 'movement, translation, and transmission' of knowledge, in Secord's words, was ever-present in the colony.

Leisure activities such as natural history specimen collecting explicitly involved public engagement with science of a more formal kind. Both Karskens and Richard Neville assert that the colonists—officers, soldiers, convicts and settlers alike—commenced collecting Australian plants, animals and rocks almost as soon as they stepped off the boat.<sup>38</sup> They also collected Eora artefacts, the study of non-European human cultures falling under the purview of 'natural history' at the time.<sup>39</sup> Neville calls natural history 'Australia's first export commodity,' and indeed, a common motivation was to sell collections through the lucrative commercial market.<sup>40</sup> Another was to send specimens to patrons in Europe because of the prestige they carried—an activity that many people, from convicts to governors, participated in.<sup>41</sup> A third was genuine interest in natural history. For example, Karskens documents settler Elizabeth Macarthur's interest in botany as a means of combatting boredom, and the delight she took in matching plants to the botanical theory she read.<sup>42</sup> Neville states that most New South Wales governors

until Lachlan Macquarie's time were 'interested in natural history to varying degrees, and keen consumers and distributors of collections.'<sup>43</sup> The darkest side of this industry was the collection, for science, of Indigenous people's skulls, probably including that of the Darug warrior Pemulwye, though some colonists, notably Governor Arthur Phillip and his officers, refused to participate in this kind of activity.<sup>44</sup>

This does not mean that British scientific authorities of the time recognised everyone as participating in science. For example, Banks strongly differentiated between amateur collectors, his paid collectors in New South Wales, and increasingly professionalised European naturalists, wanting nothing to do with the first and treating the second as menial contributors: for example, one of his paid collectors, George Caley, was employed for his physical strength rather than scientific prowess, and another, Allan Cunningham, was noticeably never invited to join the Philosophical Society of Australasia, while the naval captain whose voyages he joined was.<sup>45</sup> This tension between field collectors and academic authorities was common to natural history networks in early nineteenth century Europe, in part because the collecting side was so readily accessible to almost everyone and was therefore rarely short of amateur participants.<sup>46</sup> But irrespective of how Banks or his peers may have judged the situation, the widespread 'rage for curiosity' in the colony, as Neville phrased it, indicates both a general awareness of natural history collection as a scientific endeavour, and an enjoyment of some of its constituent activities.<sup>47</sup>

Enjoyment of natural history painting and drawing was also a popular pastime among colony residents of any status, including convicts, perhaps most notably convict artist

Thomas Watling.<sup>48</sup> According to Neville, elites commissioned and purchased such art works as ‘a reflection of cultural leadership, and a way of defining colonial experience.’<sup>49</sup> He documents Governor Phillip Gidley King commissioning a considerable number of paintings of Australian plants and animals to hang upon his walls, and notes the hundreds of natural history drawings commissioned by Arthur Phillip.<sup>50</sup> While the images displayed were not necessarily the most accurate scientifically,<sup>51</sup> they nonetheless demonstrate an interest in natural history at the periphery of formal scientific work. The first illustrated book published in Australia, artist John William Lewin’s 1813 *Birds of New South Wales*, exemplifies this preoccupation. It contains beautiful pictures of Australian birds with brief accompanying text, which combine to give a layperson’s guide to the ecology and identification of some local species.<sup>52</sup> The fact that many Sydney elites who were not specialists in science subscribed to the book to support its publication indicates the prestige associated with natural history endeavours in general society; Neville states that ‘the capacity and willingness to [subscribe] were subtle signs of education and class.’<sup>53</sup> At a more modest level of society, a ship’s surgeon hired Lewin during his voyage to Australia to give lessons in natural history and drawing, further evidence of the popularity of this mode of engaging with science.<sup>54</sup>

### **Ambivalence about Science in Poetry, Performance and the First Magazine**

While arranged collections, paintings and drawings provided a visual reference to natural history, colonial poetry provided a verbal portrait of science. Two poets are notable for the period under examination: Barron Field and Michael Massey Robinson. The former was a colonial judge and a founding member of the Philosophical Society

who edited and published the Society's transactions and some other scientifically-minded papers in an 1825 volume.<sup>55</sup> Geoffrey Little describes Field as 'a keen amateur botanist; although his approach seems to be that of the eighteenth century amateur scientist.'<sup>56</sup> Field's 1819 *First Fruits of Australian Poetry* was the first poetry book published in Australia, and although the title page states that it was printed 'for private distribution,' it presumably reached Field's network of personal acquaintances in the colony, just as it reached his literary associates in Europe.<sup>57</sup> The book contains only two poems, both to some extent concerned with science. In keeping with the general interest in natural history, 'The Kangaroo' pays tribute to this animal's unique biology. More interestingly, 'Botany-Bay Flowers,' while expressing appreciation for Field's favourite plants, also includes gently critical musings on scientific modes of talking about them:

Tho' thousands of thy vegetable works  
Have, by the hand of Science (as 'tis call'd)  
Been gather'd and dissected, press'd and dried,  
Till all their blood and beauty are extinct;  
And nam'd in barb'rous Latin, men's surnames,  
With terminations of the Roman tongue;  
Yet tens of thousands have escap'd the search,  
The decimation, the alive-impaling,  
Nick-naming of God's creatures — 'scap'd it all.  
Still fewer (perhaps none) of all these Flowers  
Have been by Poet sung. Poets are few,  
And Botanists are many, and good cheap.<sup>58</sup>

This Romanticism contrasts somewhat with the work of the other notable colonial poet, Michael Massey Robinson, a clerk and former convict. Field's claim to have offered 'the first fruits of Australian poetry' is arrogantly false, as Robinson wrote odes for both the King's and the Queen's birthdays, and recited them at Government House celebrations, every year of Macquarie's governorship (1810–21).<sup>59</sup> The poems were also published in the *Sydney Gazette* newspaper, and some reprinted for distribution as

broad­sides.<sup>60</sup> These were, then, truly a part of Sydney's public culture. While at one level Robinson's poems were nationalistic tributes to Britain, he also made repeated references linking science, reason, wisdom and freedom, in poems more resonant of the Enlightenment's valorisation of reason than the Romantic reaction against it. At the same time, Robinson qualified science's limitations in keeping with moderate Christian expectations. For example, his 'Ode for the King's Birth-Day, 1813' begins:

When Erst bright Wisdom's dawning Ray  
The Eastern World illum'd,  
And early Science hail'd the Sway  
Triumphant Truth assum'd,  
O'er the enlighten'd, distant Lands  
Learning progressive rose,  
And the sage Bramins hallow'd Hands  
Repell'd her barbarous Foes!

Then, arm'd with philosophic Pride,  
And fix'd to Reason's Rules,  
Nature her boundless Stores supply'd,  
While Wisdom rear'd her Schools;  
And as the Arts, illustrious, rose  
Adorn'd with Freedom's Smile,  
At length their Sanctuary chose  
In ALBION's genial Isle:—

And there the cherished Muses sung;  
There, their wild Harps the Minstrels strung;  
And there, 'midst Academic Bow'rs,  
Young Fancy culled the fairest Flow'rs,  
Whilst sober Contemplation, sage,  
Would studious turn the story'd Page:  
Unfold to early Genius Truths refin'd,  
And pour Instruction o'er the opening Mind!—

But who, with all the treasur'd Store  
That swells the Page of Classic Lore,  
Inspir'd with every Thought, sublime,  
Glean'd from the hallow'd Spoils of Time?  
Who, with superior Intellect refin'd,  
And proud Philosophy's aspiring Mind,  
Has dar'd—surpassing Reason's bounded Laws,  
With impious Aim to trace the GREAT FIRST CAUSE,

Or sought by feeble Systems to define  
The wond'rous Attributes of POWER DIVINE!  
Ah! vain the Task, to Mortals unreveal'd,  
The awful Mystery remains conceal'd.  
And human Reason—left in Error's Maze,  
Retires—to yield Eternal Justice Praise!<sup>61</sup>

Both Robinson's and Field's poems gently critique science. Yet, in doing so, they reveal a powerful interest in science and its meanings for society among members of the convict and ruling classes alike.

Robinson's qualified praise for science to an extent foreshadows the tone of Australia's first magazine: *The Australian Magazine; or, Compendium of Religious, Literary, and Miscellaneous Intelligence*, a monthly periodical published from 1821–2. Edited by a committee of Wesleyan missionaries,<sup>62</sup> and printed by George Howe's son Robert—the new government printer and a Methodist convert<sup>63</sup>—each issue included at least one lengthy article on aspects of natural philosophy. In 1821 it broached diverse scientific topics including comets, the platypus, the air and atmosphere, and Niagara Falls, mostly (perhaps all) reproduced from previously published British sources; for example, an article on the circulation of blood was sourced directly from William Paley's influential 1802 work *Natural Theology*.<sup>64</sup> These articles were often qualified by a pro-Christian frame vehemently opposed to the French Enlightenment. For example, the four-page article on sea-snake taxonomy in the first issue's natural philosophy section was preceded by a disclaimer more than a page in length that what the *Magazine* meant by 'philosophy' was not the meaning associated with the French Enlightenment. It began:

PHILOSOPHY.

In the modern Republic of Letters, it is, perhaps, impossible to select a term which has been the victim of a more unwarrantable assumption than that which

designates our present department. In its general acceptation, it conveys the idea of a profound acquirement, or an arduous pursuit, of natural or moral knowledge:—but there is a class of men, not inconsiderable in numerical strength, who would fain wrest it to a different and a baser use.—Having imbibed those noxious principles which were so zealously emitted by the French schoolmen of the last century, and which had well nigh blighted Europe with a moral pestilence, they dignify with the name of *Philosophy* a system which saps the very foundation of morals, and discards as fanatical and visionary whatever is derived from the pure foundations of Revelation.<sup>65</sup>

In addition to such overtly ideological pieces, and descriptions and explanations of natural phenomena, the magazine included articles about recent scientific experiments in agriculture, a report on the high number of visitors to the British Museum as ‘proof of the intellectual curiosity of the metropolis,’<sup>66</sup> and regular meteorological tables for Sydney. The latter were provided, in the magazine editors’ words, by a ‘respectable gentleman,’<sup>67</sup> most likely Colonial Secretary Frederick Goulburn, a soldier and bureaucrat who later contributed a similar meteorological table to the Philosophical Society’s 1825 proceedings volume.<sup>68</sup> Far from being indifferent to science, *The Australian Magazine* went to great lengths to celebrate science and reclaim it for the God-fearing public.

Colonial critiques of establishment science also manifested in the form of comedic plays. At different times in the colony’s history, groups of convicts formed theatre troupes and performed for their community. Once again, the visual and oral nature of theatre makes its history difficult to trace, but Robert Jordan’s meticulously researched book on convict theatre reveals that troupes performed at least three plays involving scientific (in this case medical) characters and themes.<sup>69</sup> These were Henry Fielding’s *An Old Man Taught Wisdom; or, The Virgin Unmask’d* (1735), which features an ugly apothecary prone to overzealous prescriptions of blood-letting and purging; Fielding’s

*The Mock Doctor; or, The Dumb Lady Cur'd* (1732), a play based on Molière's critique of the fraudulence of medical practice; and Samuel Foote's *The Mayor of Garrett* (1763), which criticises the cost of medicine via a money-grubbing 'pharmacoplist and surgeon' character. While the first of these was performed in 1800, we only know of later performances of the other two (1825 and 1830 respectively), but given the paucity of records and gaps in our knowledge, filled at times only by Jordan's informed speculation, it is possible both plays were performed earlier too, possibly numerous times. We have no information about any science-related discussion that accompanied the performances, for example whether the common theme of untrustworthy medical practitioners resonated with audiences, but the evidence at least attests to the circulation of these satirical criticisms of science.

We do know that medical matters often held fascination for colonial people. In his 1798 account of the colony, Lieutenant-Governor David Collins discussed an occasion when hundreds of people flocked to view the dissected body of an executed convict, and the discovery within him of a huge gallstone.<sup>70</sup> This attests either to the lack of entertainment in the colony, noted by both Jordan and Richard Waterhouse, or perhaps to people's genuine, active interest in medical matters.<sup>71</sup> Certainly, public dissections had been taking place in Britain since the late seventeenth century, so it is likely there was inherent interest in the event among the largely British population.<sup>72</sup>

### **Celebrations of Science in the First Book, Annual Periodical and Newspaper**

From 1802, the locally-published printed word became an integral component of the colony's public culture. Australia's first published book, the *New South Wales General*



*Standing Orders* (1802), contained mostly regulatory orders unrelated to science, but even it included communication about an experiment the New South Wales Corps conducted to determine exactly how much wheat made a 2lb loaf of bread. The experiment's aim was to stop bakers cheating customers and the government in a climate of scarcity, and its methods were reported in enough detail to constitute a sort of scientific report.<sup>73</sup> Here, then, is a little piece of homegrown, useful science reported to the public for the greater good.

The first annual periodical, the *New South Wales Pocket Almanack* (1806–21; later the *Australasian Pocket Almanack*, 1822–35), also included snippets of science, presented in a practical way. The *Almanack*'s function was to provide handy, accessible information about practical matters, including meteorological information, astronomical events, high water tables, and useful advice for gardening and agriculture, alongside lists of political, legal, religious and shipping events, and colonial rules and personnel. By 1821 it also included calculation tables and ready reckoners for things such as weights and measures, currencies, and commercial transactions. By its nature its scientific focus was practical, but it still provides evidence that the general population of Sydney was far from indifferent to science, and that science manifested in the colony primarily in this communicative mode.

The jewel in the crown of public science discourse in the period, however, is the longest-lived periodical of the early colony: Australia's first newspaper, *The Sydney Gazette and New South Wales Advertiser* (1803–42). Not only did it contain scientific material, it also printed ideological proclamations about science. As early as its sixth

issue, released on 10 April 1803, we find the first Australian-published opinion piece advocating the public communication of science, written as a letter to the editor by pseudonymous Sydney resident ‘Philomath’:

Sir,  
Men despising private interest have in all ages contributed to the rise of the arts and sciences, by laudably communicating to the world such discoveries as have fallen within their knowledge; though Sir, I do not for one, absolutely despise that which points to my own benefit, yet I am not of so worldly minded sentiments as to withhold my mite of assistance, by presenting a piece of information, most probably unknown to the generality of our Colonial cultivators, and calculated to promote the beneficial end of fruitful vegetation. Nature (as is admitted by the received axiom) requires assistance, it is no wonder then, that the inventive genius of man should be led to a subject every way worthy the labour which the most sedulous philosopher can bestow upon it: and it is no less worthy than just, that those remarks should be promulged for the common benefit of mankind.

I hold it a duty which every member owes to society, to contribute to the advancement of the public good, so long as that member receives no injury thereby; but perhaps the more liberal humanist may go a step further, and pronounce, that no consideration should influence the mind against an action that conduces to the general interest; be this as it may, I feel I have discharged my duty in submitting the subsequent instructions to the serious consideration of every person throughout the Colony, whose business it is to till and cultivate land.

Yours, with much Pleasure,  
“PHILOMATH.”  
Sydney, April 6, 1803.<sup>74</sup>

Once again, the impact of the Enlightenment is evident in Philomath’s valorisation of both knowledge itself, as the product of ‘the inventive genius of man,’ and also of actions that make knowledge universally available for ‘the advancement of the public good.’ Popular science, too, is present, in Philomath’s homegrown recipe for preparing ‘An Excellent Manure,’ which follows her or his proclamation that knowledge should be shared. This letter signifies a vigorous championing of the importance of scientific knowledge to ‘the common benefit of mankind,’ and uncompromisingly promotes

‘laudably communicating [it] to the world.’ In this case, ‘the world’ of primary concern to Philomath was not Europe but Sydney, as evidenced in her or his choice of a publishing venue that was integrally tied up with that place. The *Gazette* was delivered to homes all across Sydney, from Parramatta to the Hawkesbury, and in Karskens’ words ‘connected Sydney and the plain, gave the town a sense of itself, and its place in the world.’<sup>75</sup> Karskens also speculates that it would have been read aloud in pubs, forming a lively part of Sydney’s social fabric.<sup>76</sup> Philomath’s letter shows us that even if the convicts and their offspring never met a scientist and never formally learned science, it is untrue to state they did not encounter science’s tenets.

The *Gazette* frequently covered scientific topics of all varieties. It regularly discussed technical information, inventions and scientific research relevant to the practical domains of the nautical, the meteorological, health, food preparation, agriculture and public works; all topics that remained popular in Europe in later nineteenth century popularised science.<sup>77</sup> For example, a topic of particular interest in its early years was the introduction of the Jennerian cowpox vaccine into Sydney, with an entire page of the four page newspaper devoted to its advocacy on 13 May 1804.<sup>78</sup> While the topic is clearly practical, the presentation mode is scientific, using a table to compare the effects of natural smallpox and two kinds of inoculation. This is an instance of serious science communicated in a way that aimed to promote serious public engagement with its subject matter.

Despite the practical emphasis of these topics, it is clear that Howe and his readers were not interested in science solely for its applications. The newspaper also reported on less

obviously ‘useful’ aspects of science right from the start. In its first volume (March 1803–February 1804) it discussed comets, methods for collecting and preserving quadrupeds and birds, the invention of a mechanical toy in China, and the ‘discovery’ of species unknown to Europeans, including the Koala. These regular inclusions sit comfortably alongside political, judicial and shipping news, local gossip, current events, and commercial advertising, clearly indicating a general interest in science.

## **Conclusion**

As is by now clear, historians of Australian science must choose models of science carefully when considering the extent to which science was a part of society at any given time. Even if scientific research, institutions and professionals were largely invisible in the colony before the 1820s, science was a significant part of Sydneysiders’ lives, embedded in the landscapes of their worlds. Sydney residents, including convicts and emancipists, were not indifferent to science—they embraced it, criticised it, reported it, reframed it, and generally speaking engaged with it. Public science in Sydney during the period may not have compared to that in London or Paris in size or spectacle, but nor was it trivial.

Beyond its inherent interest, there are some threads linking the public science of the early colony to the burgeoning institutionalisation that was soon to follow. A full exploration of these links is a topic for another paper, but the most obvious are Barron Field and Frederick Goulburn, discussed above for their contributions to public science discourse, who were key players in the Philosophical Society of Australasia and the

Agricultural Society of New South Wales. The first edition of *The Australian Magazine* anticipated what was just over the horizon when the editor wrote:

And we shall always rejoice when, by the assistance of the scientific gentlemen of the Colony, we shall have it in our power to give a marked prominence to those features of natural history which are peculiar to the vast continent of Australasia.<sup>79</sup>

We can therefore conclude that pre-1822 Sydney does resemble the ‘periphery model’ described by Papanelopoulou and colleagues for Europe beyond its metropolitan centres, in that its local science took the form of communication and public engagement rather than institutionalised primary research.<sup>80</sup> As one might expect for a periphery, some popular science-themed texts such as plays and magazine articles were imported from overseas, primarily from Britain, and some cultural products such as natural history collections, artworks and poetry were exported, especially to Britain. Yet Sydney’s public science discourse was not merely a popularised form of knowledge produced by the centre, and nor was the colony merely an outpost for making new collections. As Papanelopoulou et al. emphasise for the European periphery, weak institutionalisation ‘contributed to very fluid communication processes in which knowledge circulated easily in society.’<sup>81</sup> As well as borrowing from existing popularising sources, colony residents such as Philomath also wrote about science in their own words. They purposed or repurposed science discourse with an orientation towards their own growing community, their own nascent public sphere. In doing so, the general population of early Sydney made science their own.

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- <sup>12</sup> Roger Cooter and Stephen Pumfrey, writing in 1994, noted that ‘surprisingly little has been written on science generally in popular culture, past or present.’ Roger Cooter and Stephen Pumfrey, ‘Separate Spheres and Public Places: Reflections on the History of Science Popularization and Science in Popular Culture’, *History of Science*, 32(3) (1994), 237–267, see p. 237.
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