

# Colonial botany

## Two Scots and 26 teaching aids

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During a recent project to upgrade storage data for the repository of the University of Melbourne Archives (UMA), archives staff became interested in 26 sheets of large-scale botanical illustrations. These intriguing items serve as illustrations of how scientific ideas were spread in the 19th century.

Two names appear on the watercolours: *N. Stewart* and *John Macadam M.D.* To find out more about the connection between these men, I corresponded with librarians, archivists and other collection professionals in distant places and locally with equal ease, primarily by email—attaching digital images and scans. Distance is far less a barrier



to the rapid communication of ideas and information today than it was when these illustrations were made.

Dr John Macadam (1827–1865) arrived in Melbourne from Glasgow in 1855, aged 28, to take up an appointment teaching chemistry and natural science at Scotch College, holding this post until his death.<sup>1</sup> In 1862, Macadam began lecturing in chemistry and practical chemistry in the University of Melbourne's newly established medical school.<sup>2</sup> He also became involved in many spheres of endeavour in the rapidly developing colony. He was elected a member of the Philosophical Institute (later Royal Society) of Victoria in 1855 and served on its council, as editor of its *Transactions* (1855–60) and as honorary secretary (1857–59). Macadam (together with all four foundation professors of the university) served on the Royal Society's committee for the Victorian Exploring Expedition, to be led by Burke and Wills; Macadam's duties included writing the instructions for the expedition's botanist.<sup>3</sup>

Throughout Britain and her colonies, natural science societies of various types supported expeditions and experiments, and disseminated knowledge to their members, many of whom joined by paying a fee, without any requirement for formal training

or academic qualifications. Societies and universities, individuals, museums and the agricultural sector were all involved in the pursuit of scientific knowledge. Such activity embodied 'the Victorian urge to combine recreation with higher purposes such as reform and education'.<sup>4</sup> Although comprehensive knowledge was associated with gentlemanly independence, its pursuit softened gender, class and educational barriers.

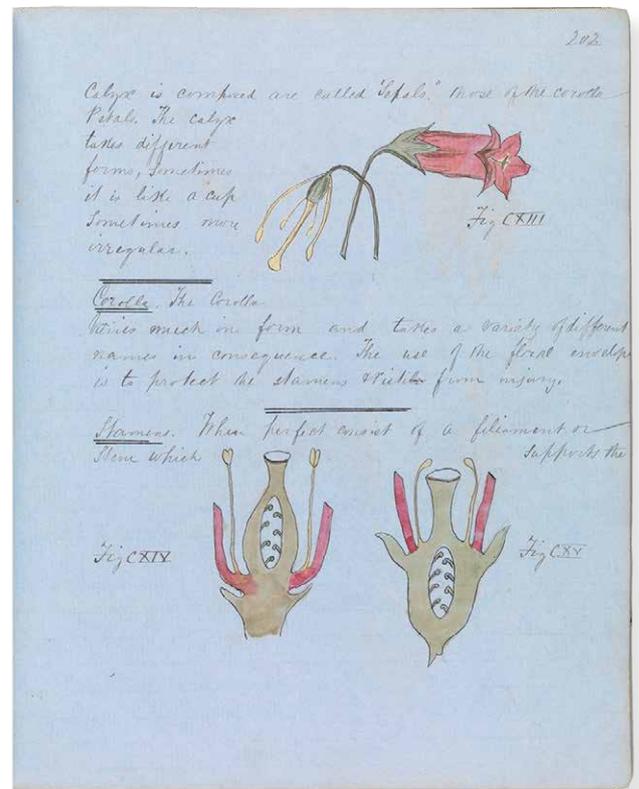
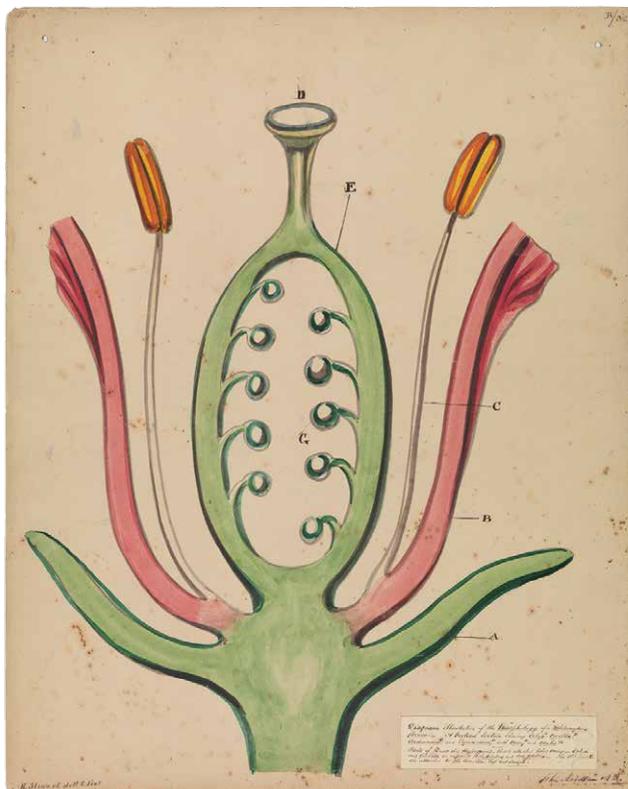
A student notebook from 1858 (opposite and p. 52) confirms that Macadam used the illustrations now held at UMA as teaching aids at Scotch College (then in East Melbourne).<sup>5</sup>

The trail showing how the illustrations came to the university is faint, although correspondence following Macadam's death records his widow's wish for the university to retain his apparatus and other equipment. One of these letters mentions 'diagrams' but without indicating their nature.<sup>6</sup> A note found with the sheets in the UMA repository suggests that Professor Alfred James Ewart and Dr Ethel McLennan used them while teaching at the School of Botany (between 1906 and 1955) and a few sheets bear Dr McLennan's handwriting (see top of p. 52).

Opposite: Neil Stewart, annotated by John Macadam, B/11: ... *An epiphytic orchid* ..., c. 1844–54, watercolour on paper, 61.0 × 48.0 cm. 2016.0062, Visual Aids for Teaching Botany, University of Melbourne Archives.

Below, left: Neil Stewart, annotated by John Macadam, B/32: *Diagram, illustrative of the morphology of a dichlamydeous flower* ..., c. 1844–54, watercolour on paper, 61.0 × 48.0 cm. 2016.0062, Visual Aids for Teaching Botany, University of Melbourne Archives.

Below, right: James Donaldson Law, page from workbook while a student at Scotch College, East Melbourne, 1858. Personal collection of Paul Mishura.



The usefulness of such teaching aids declined with the use of glass photographic slides, and it appears that the sheets were put aside, eventually being transferred from the School of Botany to UMA sometime after 1960.

Comparatively little is known about Neil Stewart (1814–1875).<sup>7</sup> Nothing is known of his training,

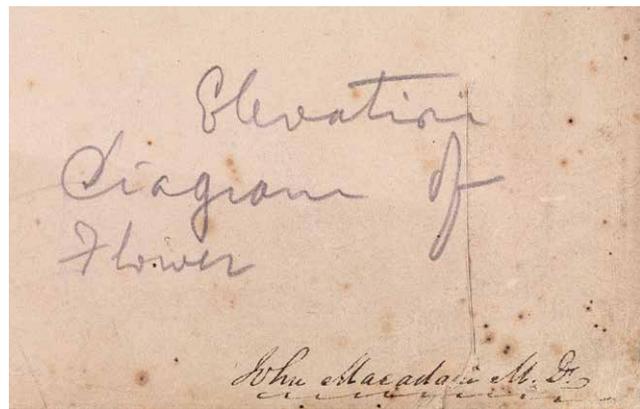
but he considered himself suitably qualified to teach drawing, and in 1853 gathered testimonials of support from men of science for his application for a teaching post.<sup>8</sup> He lived and worked in Edinburgh, not far from the Royal Infirmary, producing illustrations of pathology specimens for Dr William Gairdner from 1848 until about 1855. Examples of this

work now held by the University of Dundee are inscribed 'Drawn by N. Stewart' with a date, and some show a letter-number combination at upper right, similar to those at UMA.<sup>9</sup> Stewart joined the Botanical Society of Edinburgh in 1850, becoming its official artist in 1857. Several universities in other parts of Britain commissioned teaching

Right: Attributed to Dr Ethel McLennan, pencil inscription above signature of John Macadam, from sheet B/35 [untitled], 2016.0062, Visual Aids for Teaching Botany, University of Melbourne Archives.

Below, left: Neil Stewart, annotated by John Macadam, B/39 [untitled], c. 1844–54, watercolour on paper, 61.0 × 48.0 cm. 2016.0062, Visual Aids for Teaching Botany, University of Melbourne Archives.

Below, right: James Donaldson Law, page from student workbook, 1858.



illustrations from him;<sup>10</sup> surviving unsigned examples held by the Royal Botanic Garden Edinburgh are similar in style to those at UMA.

Although Stewart is known to have worked from specimens and 'from the microscope',<sup>11</sup> he based some of his illustrations and diagrams on the work of others. This was a

common practice in the 19th century, and explains in part why subsequent iterations of illustrations by other artists may be less detailed than the original, and often quite crude. One of the watercolours at UMA is very like an illustration of *Thea viridis* by W.J. Hooker, published in 1832 (opposite, below). Another version of

this illustration was made by the artist of the 'Dapuri drawings' in India, c. 1848.<sup>12</sup>

Botanical species new to science are described in both words and drawings, and a 'type' specimen (the specimen upon which the first published scientific identification is based) is retained by a collecting



institution such as a herbarium. In the mid-19th century, descriptions and drawings of plants and animals new to Western scientists were copied and circulated, published and reprinted, fuelling an enthusiasm for 'discovery' and contributing to the rapid growth of scientific understanding of the physical world. The establishment in 1852 of a regular mail service carried by steam-powered vessels reduced transport time for mail between Australia and Britain from an average of 121 days to 79,<sup>13</sup> enabling discoveries and scientific theories to be more quickly communicated than in the days of sail.<sup>14</sup> About six months after the *Macadamia* tree was named for John Macadam in 1857 by botanist Ferdinand Mueller (a fellow member of the Philosophical Institute),<sup>15</sup> a report on this newly documented genus in the Proteaceae family was given to the Botanical Society of Edinburgh by Dr George Lawson.<sup>16</sup> Lawson based his 1858 address on Mueller's description, and illustrated his presentation with drawings by local artist and fellow member Neil Stewart, whom he had supported by testimonial a few years earlier. Mueller's description of *Macadamia* came to Lawson from Dr Stevenson Macadam (brother of John Macadam) in the form of a copy of

the *Transactions of the Philosophical Institute of Victoria*.<sup>17</sup> The *Transactions* included an illustration of *Macadamia* by Ludwig Becker, later one of the members of the ill-fated Burke and Wills expedition. It is likely that Stewart based his illustrations on Becker's lithograph (see p. 54) in the same way that Lawson re-voiced the text. All these links prompt the tantalising question of whether John Macadam may have personally known Neil Stewart in Edinburgh.

Each of UMA's 26 illustrations is in watercolour on a large sheet of heavy paper, and bears several handwritten inscriptions in ink. *John Macadam M.D.* is signed in Macadam's own hand in dark-brown ink in the lower right corner.<sup>18</sup> The annotation at lower left reads *N. Stewart del.<sup>t</sup>, Edin<sup>r</sup>*. On slips of paper inserted into slits in the main sheet are notes identifying the species or part of the plant depicted, while numbers in the form *B/n* in a broken series (for instance, *B/32*, *B/39*) are inscribed upper right. Holes in each corner indicate that the sheets were at some time pinned to a wall or board.

To confirm that Neil Stewart was the creator of the works now held at UMA, we compared them to some of his known works in

Top: Neil Stewart, annotated by John Macadam, *B/49* ... *Thea viridis*, c. 1844–54, watercolour on paper, 61.0 × 48.0 cm. 2016.0062, Visual Aids for Teaching Botany, University of Melbourne Archives

Bottom: W.J. Hooker (artist); Swan (printmaker), *Thea viridis*, lithograph, in *Curtis's Botanical Magazine*, vol. 59, 1 December 1832, Plate 3148, p. 81. Missouri Botanical Garden.





Ludwig Becker (artist and lithographer); H. Friend (printer), *Macadamia ternifolia*. Ferd: Mueller, lithograph, in *Transactions of the Philosophical Institute of Victoria*, vol. 2, part 2, 1857, p. 73. Library of the Royal Society of Victoria.

Scotland, using digital images and descriptions provided by collection managers. On the UMA illustrations, Stewart is acknowledged as the artist in a form usually used in published prints, unlike the form of signature on the Dundee examples. (*Del* or *del'* stands for *delineavit*, Latin for 'drew', meaning the artist from whose drawing the printing surface—such as a lithographic plate—was prepared). This oddity suggests that Macadam may have written the acknowledgement when he signed his ownership on the sheets—the ink appears to match, and although the writing differs, this may be due to the difference between careful lettering and a signature.

With further work, a conservator could analyse the papers, inks and watercolours in order to prove or disprove these observations. Communication is easy these days, but exchanging digital images and descriptions via the internet cannot substitute for working with the real thing.

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- 1 K.F. Russell, 'Macadam, John (1827–1865)', *Australian dictionary of biography* (vol. 5, Melbourne University Press, 1974), National Centre of Biography, Australian National University, [adb.anu.edu.au](http://adb.anu.edu.au), viewed 3 February 2016.
- 2 Dr Macadam was appointed on 6 January 1862, to teach chemistry and practical chemistry, and was required to supply apparatus and chemicals at his own cost (Minutes of University of Melbourne Council, meeting, 6 January 1862. 1993.0044, University of Melbourne Council, University of Melbourne Archives).
- 3 Burke and Wills Expedition Records, MS 13071, State Library Victoria, viewed 3 February 2016 via *Burke and Wills web: Digital research archive*, [www.burkeandwills.net.au/index.php](http://www.burkeandwills.net.au/index.php).
- 4 Juliana Edelman, *Communities of science in nineteenth-century Ireland*, London: Pickering & Chatto, 2009, p. 11.
- 5 James Donaldson Law, Workbook while a student at Scotch College, 1858. Personal collection of Paul Mishura.
- 6 J.W. Nolan (on behalf of Mrs Macadam) to the chancellor, vice-chancellor and Council of the University of Melbourne, 31 October 1865; J.W. Nolan to E.F. à Beckett, 2 February 1866. Letters 380 and 384, 1993.0046, University of Melbourne Medical School Correspondence 1856–1909, University of Melbourne Archives.
- 7 Obituary for N. Stewart, quoted in W.L. Yule, 'In search of a medical artist', *The Lancet*, vol. 352, no. 9130, 5 September 1998, pp. 806–9.
- 8 Neil Stewart (compiler), *Testimonials in favour of Mr Neil Stewart, artist*, Edinburgh: 1853, 8 pp, item in bound volume labelled 'Testimonials P–W'. Accession code DZGU1, Special Collections, Library, Royal Botanic Garden Edinburgh.
- 9 'Pathology drawings', *Unlocking the medicine chest*, Archives Record Management Museum Services, University of Dundee, <http://arccat.dundee.ac.uk/dserve/dserve2/history/ms16hist.html>, viewed 3 February 2016.
- 10 Edelman, *Communities of science in nineteenth-century Ireland*, p. 116.
- 11 'From the microscope by N. Stewart, printed in colours by W.H. Lizars, Edin', illustration for John Hughes Bennett, 'An investigation into the structure of the Torbanehill mineral, and various kinds of coal', *Transactions Royal Society of Edinburgh*, vol. 21, part 1, 1853–54, pp. 173–85.
- 12 Henry J. Noltie, *The Dapuri drawings: Alexander Gibson and the Bombay Botanic Gardens*, Royal Botanic Garden Edinburgh, 2002.
- 13 'JRC', 'Fifty years ago, the arrival of the first mail steamship in Australia', *Sydney Morning Herald*, 30 August 1902, p. 5.
- 14 Among his many roles, Macadam was postmaster-general in Victoria in 1861, and Member of the Legislative Assembly for Castlemaine.
- 15 Ferdinand Mueller became known as Baron von Mueller from 1867.
- 16 G. Lawson, 'A new genus of Proteaceae', *Transactions of the Botanical Society Edinburgh*, vol. 5, 1858, pp. 36–7.
- 17 Ferdinand Mueller, 'An account of some new Australian plants, read before the Institute 5 August 1857', *Transactions of the Philosophical Institute of Victoria*, vol. 2, January–December 1857, pp. 62–77.
- 18 Macadam's signature on the sheets of illustrations matches those on the following letters to the University of Melbourne: John Macadam to A.C. Brownless, 13 January 1862; John Macadam to John James, 21 January 1862 (Letters 316 and 317, 1993.0046, University of Melbourne Medical School Correspondence, University of Melbourne Archives).