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JOHN TWEEDIE AND CHARLES DARWIN IN BUENOS AIRES

by

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The journey of exploration undertaken by Charles Darwin FRS during the voyage of HMS *Beagle* has a central place within the historical development of evolutionary theory and has been intensively studied. Despite this, new facts continue to emerge about some of the details of Darwin's activities. Drawing on recently published Darwin material and unpublished letters in the archives of the Royal Botanic Gardens, Kew, we document a hitherto unexamined link between Darwin and John Tweedie (1775–1862), a relatively obscure Scottish gardener turned South American plant collector. All of the available evidence points to a meeting between the two men in Buenos Aires in 1832. Tweedie provided Darwin with information about the geography of the Rio Paraná, including the locality of fossilized wood eroding from the river bank. It also seems likely that Tweedie supplied Darwin with seeds that he later shipped back to John Stevens Henslow in Cambridge. Although this brief meeting was at the time relatively unimportant to either man, echoes of that encounter have resonated with Tweedie's descendants to the present day and have formed the basis for a family story about a written correspondence between Darwin and Tweedie. Local information supplied to Darwin by residents such as Tweedie was clearly important and deserves further attention.

Keywords: HMS *Beagle*; Buenos Aires; Charles Darwin; fossil wood; John Stevens Henslow; John Tweedie

INTRODUCTION

The life of Charles Darwin is probably the most documented and dissected of any nineteenth-century man of science. However, although it is unlikely that any significant

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surprises remain to be uncovered about his professional work, the details of some of his dealings with scientists, naturalists and others are still being investigated by scholars. This is particularly true of the iconic *Beagle* voyage of 1831–36. During this period Darwin encountered many individuals and referred to them in his notebooks, only a few of whom are mentioned in his published accounts. Those notebooks have only recently been published,¹ and other manuscript sources remain unavailable except via *The complete work of Charles Darwin online*.² One such previously undocumented encounter was between Darwin and John Tweedie (1775–1862), a Scottish gardener turned plant collector. During the first half of the nineteenth century John Tweedie was one of the most significant collectors of southern South American plant material. In the period between 1826 and 1862 he amassed and distributed tens of thousands of dried specimens, living plants and packets of seeds which were sent to botanic gardens and private collectors in Britain and Europe. The main focus of his collecting was the scattering of republics that now comprise Argentina, Uruguay and southern Brazil, with many species new to science coming from the hillier areas of the pampas and the Atlantic coastal rainforest. Tweedie's efforts were recognized by contemporary botanists, particularly Sir William Jackson Hooker, and at least 30 novel taxa were named in his honour.³ This included the genus *Tweedia* Hook. & Arn. (Apocynaceae: Asclepiadoideae), considered by some botanists to be synonymous with *Oxypetalum* R. Br., but phylogenetically distinct according to the most recent analysis.⁴

Research by the first author (J.O.) for what will eventually be the first full biography of Tweedie⁵ has uncovered evidence that Tweedie and Darwin communicated, and probably met, in or around Buenos Aires in 1832, when the *Beagle* visited there. This evidence comes both from Darwin's notebooks and manuscripts and from one of Tweedie's unpublished letters to William Hooker in 1834, when Hooker was Regius Professor of Botany at the University of Glasgow.

As a previously overlooked occurrence in Darwin's otherwise well-recorded personal history, this contact is worth describing and discussing to add detail to one of the most formative periods in his career and to consider how acquaintances such as Tweedie influenced his fieldwork. A more fundamental aim is to begin the process of elevating Tweedie from historical obscurity and to acknowledge his importance in our understanding of South American biodiversity. However, the interaction between Darwin and Tweedie was short-lived and of relatively little contemporary significance to either man. Tweedie was concerned with commercial plant-collecting as a way of helping to support his family, and money was to be made from the 'considerable collection[s] of new things'⁶ that he was shipping to Hooker and others. The collecting and correspondence also provided a stimulus to what could undoubtedly be a dull existence in a distant colony, and status for a man of humble origins. Darwin's preoccupations during the voyage have been documented in detail, and Tweedie was only one of many individuals he contacted for local information, recording names, dates and details in his notebooks.⁷

In the early 1830s both Darwin and Tweedie were relatively obscure individuals; Darwin's later achievements hardly require restating but Tweedie remains little known except to the few botanists and gardeners who appreciate his efforts. However, at the time of his death in 1862, more than a decade after his last significant collecting expedition, Tweedie was well regarded enough for obituaries and death notices to appear in Argentinian, American, French, German and British publications. A reassessment of the

man and his work is long overdue, as is the role of such individuals in supporting the early stages of Darwin's career.

JOHN TWEEDIE IN SOUTH AMERICA

By the time the *Beagle* arrived in Buenos Aires in 1832, Tweedie had been settled in South America for about six years. He initially emigrated with his family in 1825, at the age of 50 years, a surprisingly advanced age for the time: the average life expectancy for a man of his class in Scotland had only risen to 40 years by the 1850s.⁸ Tweedie had enjoyed a successful career as a gardener at a succession of large Scottish estates, and his emigration had a very specific purpose: he became the head gardener at Santa Catalina, an *estancia* owned by William Parish Robertson. Robertson was the founder and architect of the first Scottish agricultural colony in South America at Monte Grande, south of Buenos Aires. Civil unrest in the region forced the subsequent dissolution of the colony,⁹ and by 1829 Tweedie had to look to other means of supporting himself, his wife and their children. As well as gardening and running a store with his family,¹⁰ Tweedie set off on a series of expeditions that generated plants, money from patrons such as Hooker and the Duke of Bedford, and for a period some fame as Hooker referred to his specimens and published two accounts of his travels in his magazine *Annals of Natural History*.¹¹ These reports provide us with detailed first-hand descriptions of the frustrations and hardships endured by early plant collectors as they travelled to remote and often dangerous locations. For example, Tweedie's expedition in April and May 1837 to the Serras de Tandil,¹² a low range of rocky hills about 300 miles south of Buenos Aires, began with his joining a caravan of six ox carts setting out on a trading trip. However, the slow progress of the carts 'through a country intersected with wretched roads; for there being no material for making roads' proved exasperating for the impatient Scotsman, and he hired horses, leaving the caravan to wend its slow way across the pampas. In his account Tweedie tells us about the local populace and their approaches to farming and trade, as well as giving descriptions of the plants he encountered. The Serras de Tandil expedition was not Tweedie's most successful, however, and one month of travelling 'in search of that which was not to be found' yielded few species that he had not already collected. Although we are still working out the details of all of his travels from the limited evidence available, it is clear that between 1831 and about 1850 Tweedie travelled thousands of miles in search of plants, north as far as Rio de Janeiro, south to northern Patagonia, and west to the foothills of the Andes. Despite their differences in age, background, education and experience, Tweedie shared Darwin's appetite for travel and collecting. Perhaps Tweedie's most significant collecting was done in the Atlantic coastal rainforest, which he visited when it was largely intact; less than 10% of it currently remains. The scale of Tweedie's collecting and the fact that he visited areas where there had been little or no collecting before means that a significant proportion of what he gathered was new; for example, almost 300 of the Tweedie collections at the Herbarium of the Royal Botanic Gardens, Kew, are type specimens.¹³ The number of novel taxa will certainly increase with further research, because Tweedie's collections in the world's herbaria have never been fully catalogued.

In addition to Tweedie's corresponding with William Hooker at Kew, we know that he sent plants and seeds to a wide network of contacts that included the botanic gardens

at Glasnevin in Dublin¹⁴ and Edinburgh, as well as private collectors and nurserymen. Tweedie did not distinguish between collecting for botanical science and collecting for horticulture, which reflects the shared roots of those two subjects and, at this period, the common readership of journals such as *Curtis's Botanical Magazine*, which Hooker edited from 1826.

THE DARWIN CONNECTION

The possibility of a personal connection between Tweedie and Darwin was first suggested in print, as far as we are aware, by Mea Allan in her book *Darwin and his flowers* (1977); she stated that the Brazilian plant *Abutilon darwinii* (Malvaceae) was 'named by John Tweedie to whom Darwin was a hero'.¹⁵ This is incorrect: *Abutilon darwinii* was actually named by Joseph Dalton Hooker in 1871,¹⁶ some nine years after Tweedie's death.

Aside from this factual inaccuracy, Darwin's 'hero' status to Tweedie seems unlikely; although Darwin became well known for the books and articles published in the period 1838–58, he achieved anything that could be described as 'heroic' status only after the publication of *On the origin of species* in 1859, by which time Tweedie was 84 years old, and only three years from his death. Was Allan referring to Darwin's pre-*Origin* books as being important to Tweedie? This is improbable because Tweedie refers to Darwin only once during a period of correspondence with Sir William Hooker that lasted almost 20 years (1831–49). It is possible that the reference to Tweedie by Allan is actually an error and she meant: 'collected by Tweedie and named by Joseph Hooker to whom Darwin was a hero'. This is more factually correct, although it would be even more accurate to state that Hooker was a close friend of Darwin's. However, it is also possible that Allan was misremembering an ongoing myth or rumour about a Tweedie–Darwin connection that may have been picked up from a casual perusal of the Tweedie–Hooker correspondence at Kew (see below) and which persists to this day within the familial memories of Tweedie's direct descendants.¹⁷ As will be shown below, there is no doubt that Darwin and Tweedie communicated, and probably met, in Buenos Aires.

DARWIN REFERENCES IN TWEEDIE'S WRITINGS

The bulk of what we know about John Tweedie's botanical explorations comes from the series of letters that he wrote to Sir William Hooker and that are currently held in the archives of the Royal Botanic Garden, Kew. This unpublished correspondence provides an interesting insight into the development of botany as a science and of our understanding of plant biodiversity in the first half of the nineteenth century. In a letter written on 7 April 1834,¹⁸ Tweedie describes a visit to the military outpost of Fuerte Argentina on Bahia Blanca in northern Patagonia during February and March of the same year. Having travelled from Buenos Aires by sea, he arrived to find an unsettled and dangerous situation with the army fighting local native peoples. The commandant advised Tweedie not to travel up into the hills (where botanizing was likely to be more productive) without an armed guard and suggested that he join a cavalry troop heading out to the encampment of General Rosas, the infamous military leader and later head of

the Argentine Confederation. Although Tweedie was expected to present his passport to Rosas, he instead tried to recruit a guide:

I next fell in with a man who had travelled these mountains as a guide to Mr Darwin Naturalist of His Majesty's Ship *Beagle* a discovery ship lately on this station but tho I offered his 10th per day he would not go nor for no pay whatever.

The *Beagle* had visited Bahia Blanca during September and October 1832, and again in August and September 1833. Darwin seems to have had at least two, and perhaps three, gaucho guides at different times during those visits, although he never tells us their names. The identity of the guide mentioned by Tweedie is so far unknown. What is particularly interesting about this letter is that Tweedie clearly understands Darwin to be the official naturalist on the *Beagle*, contrasting with modern interpretations that Darwin was instead a 'gentleman's companion' to Captain FitzRoy. This reference to Darwin's role is new, but not unique because a close reading of contemporary documents shows an overwhelming consistency to refer to and treat Darwin as the *Beagle*'s naturalist. The modern view that Darwin was instead a companion dates to the 1970s.¹⁹

REFERENCES TO TWEEDIE IN DARWIN'S WRITINGS

Tweedie was a resident of Buenos Aires at the time when the *Beagle* anchored there between 2 and 9 November 1832, and again between 20 and 26 September and 21 October and 1 November 1833. Darwin explored the pampas around the town, travelling south as far as northern Patagonia. These were all areas that Tweedie knew well, having systematically collected plants across the pampas since arriving in South America; as early as 1826 Tweedie was collecting seeds of such common plants as *Ipomoea bonariensis* from around Buenos Aires and sending them back to horticultural contacts in Scotland.²⁰ Although Darwin makes no mention of Tweedie in any of his published works, this is not so surprising. He encountered many individuals during five years of exploration and most are not mentioned by name, even those with whom he worked closely, such as his servant Syms Covington. However, in recent years Darwin's previously unpublished writings have become available via *The complete work of Charles Darwin online*²¹ and are beginning to be published in annotated form.²² A search of that material revealed tantalizing clues that established a link between Darwin and Tweedie.

One of Darwin's notebooks from the *Beagle* voyage covers the periods November 1832 to February 1833, and December 1833, known as the 'Buenos Ayres notebook'.²³ In early November 1832, on page 5a of the notebook, Darwin has written:

Tweedee Retiro
J Tweedee
Tweedee
Public Garden
Retiro Retiro

This is a clear reference to John Tweedie and the garden that he had established after his move from Santa Catalina. Retiro was an area that included the infantry barracks near the Plaza Marte in Buenos Aires²⁴ and is now a significant transport hub within the city. But what is Darwin referring to? Did he go to the garden and meet Tweedie? Was it a note to

remind himself to visit the garden? The earlier and later entries around this page mainly refer to events that have happened: ‘Mr Hammond owes me 27 paper dollars’; ‘Sunday Convents idolatry gay appearance . . . rode out in the evening along the beach’; ‘Went about 6 leagues into the campo.—& rode fresh horses back again: open flat country—very green tall thistles—number of small owls. very like Cambridgeshire from Poplars & Willows.’; ‘Expecting to go off wasted the day—dined with Mr Gore & met the Colonel Vernon, great Traveller—pleasant evening’. Perhaps, then, Darwin is referring to a meeting that took place between the two of them at Tweedie’s garden? However, the rambling and repetitive nature of these notes suggests to us that Darwin was writing down what someone had just told him or was telling him at the moment, i.e. that there is someone called Tweedie/Tweedee at Retiro that he should remember, in which case this would be before any meeting.

The second reference that Darwin makes to Tweedie is in part 1 of his ‘Geological diary’,²⁵ in a section dated November 1832, concerned with ‘Scattered facts communicated to me by different people’. Most of this section deals with the Rivers Uruguay and Paraná, with the names of several individuals mentioned. Halfway down one of the pages Darwin has written:

About 6 leagues northwards of ‘Bajada’ (opposite Santa Fe on the Parana) ‘there project from a ferruginous sandstone pieces of substance resembling petrified wood.’—
(Mr Tweedee)

The quotation marks indicate that this is information obtained, presumably verbally, directly from Tweedie himself, who had had travelled ‘about 400 miles up [the] Parana River’ in 1831.²⁶ This is probably when Tweedie observed the petrified wood. Darwin later refers to a collection of the wood that he made in a list he gave, with the specimens, to the Scottish botanist Robert Brown (1773–1858), Keeper of the Botanical Department of the British Museum, after the voyage. Brown examined them some time between the end of March and mid-May 1837,²⁷ but he never published descriptions of Darwin’s fossil wood specimens. The specimens are now in the Department of Palaeontology, Natural History Museum (London), where his specimen number 1575 is described²⁸ as having being found ‘embedded in a ferruginous sandstone, belonging to a tertiary deposit of no great age — near St Fe. Banks of the Parana Latitude 32°.—S’.

Darwin’s third reference to Tweedie occurs in the ‘St. Fe notebook’.²⁹ On page 5a there is a list of items and memoranda. Halfway down the list we find the following:

Write bills Pen knife
Repair the book Mr Tweedee [seeds]
Paper for plants

The first section of the notebook covers the period in 1833 during which Darwin trekked from Buenos Aires to Santa Fé and Paraná, returning by boat. The lists at the beginning of the notebook (of which the page where Tweedie is mentioned is only one of six) predate the expedition, which began on 27 September 1833. These include names of various contacts, reminders to pay bills and to pick up items and equipment for the trek. ‘Paper for plants’ probably refers to absorbent paper used when pressing botanical specimens, and its proximity to Tweedie is intriguing—was Tweedie supplying Darwin with paper? If the indecipherable word really is ‘seeds’, was Darwin referring to Tweedie’s providing him with seeds? In a letter that Darwin sent from Montevideo to Professor John Stevens

Henslow in Cambridge dated 24 November 1832,³⁰ Darwin gives an account of some specimens he is sending back for Henslow. He states:

We have been at Buenos Ayres for a week. . . . In the city [I] obtained much information about the banks of the Uruguay. . . . I purchased fragments (No^{rs}: 837 & 8) of some enormous bones. . . . I also procured some seeds.—I do not know whether they are worth your accepting; if you think so, I will get some more:—they are in the box.

Darwin's choice of words here is telling: he 'purchased' the bones and 'procured' (not 'collected') the seeds. Later in the same letter Darwin is apologetic about the quantity of material he is sending to Henslow: 'With the exceptions of the bones, the rest of my collection looks very scanty. Recollect how great a proportion of time is spent at sea.' With limited time on land, and not wishing to disappoint his mentor Henslow, Darwin was filling out his natural history collections with items purchased from residents of the country. Given the date (see below) and the possibility that the indecipherable word in Darwin's first mention of Tweedie is 'seeds', we strongly suspect that John Tweedie was the source of at least some of the seeds he sent to Henslow. No record of what these seeds were seems to exist, though we know of other seed collections.³¹ However, Darwin's efforts were largely wasted, as he ruefully recounts in some 'Advice to Collectors':³²

Seeds must not be sent home in the same case with skins prepared with poison, camphor, or essential oils; scarcely any of mine germinated, and Professor Henslow thinks they were thus killed.

Finally, Darwin refers to information communicated by Tweedie in some notes written on loose manuscript pages³³ as follows:

Limestone occurs at Mercedes (Mrs Lumb & Hughes). —

Also at las Vacas. very soft. (Mr Tweedee)

Mr Tweedie notes on sailing up Rio Parana for about 50 miles before arriving at [Barradero] or San Pedros. — the river is bounded on its Western side by a low cliff about 4 feet high: From San Pedros to Rozario. the cliff is about 40 feet high. — From this point to Santa Fe the banks are inclined & wooded. — On the East bank. —

At Punta Gorda, the cliff is broken at Bajada. the cliff is from 40 to 50 feet high & composed of beds of reddish clay about 6 feet thick alternating with thicker beds of oysters shells. adhering together. — These shells are of great diameter. & nearly one inch thick. not quite circular: the water of river causes masses to fall down & these are burnt for lime.

There is a calera. or lime kiln north of Salto. —

Mr Tweedie mentions the death of vast numbers of cattle, who during a long drought came to drink. ~~fell~~ rushed down the low cliff were exhausted & could not rise: may not this account for the number of [~~Mastodon~~] bones found in one bed of river

The continuity of the text suggests that all of the above information is from Tweedie, who had also referred to the drought in a letter to Hooker earlier that year: 'the extreme drought which we have had for two years' had turned the land around into 'one continued plain of dry blown dust for many hundred miles extent. The cattle has died in thousands'.³⁴

A MEETING BETWEEN CHARLES DARWIN AND JOHN TWEEDIE?

The written evidence we have presented means that we can confidently state that Charles Darwin and John Tweedie were aware of one another during the period when Darwin was visiting Buenos Aires. A question that is still outstanding is whether the two actually met or whether information (and seed material, if Tweedie was the source of those ‘procured’ by Darwin) was being transmitted by a third party. There were in fact rather few opportunities for Darwin and Tweedie to meet in Buenos Aires, because Darwin was only in the city from 2 to 9 November 1832, between 20 and 26 September 1833, and from 21 October to 1 November 1833. Tweedie was collecting in southern Brazil, as far north as Rio de Janeiro, from December 1832 and during most of 1833. He was therefore not in Buenos Aires during Darwin’s second and third visits. However, he almost certainly was in Buenos Aires in early November 1832, when Darwin first visited the city. Thus, if Charles Darwin and John Tweedie actually met, it would have to have been between 2 and 9 November 1832. Our conclusion from the available evidence is that such a meeting did take place.

Family tales are notoriously unreliable because facts and data become corrupted by the constant retelling between generations, and ancestral myths achieve unwarranted substance. Nevertheless, they are worth listening to and considering because at their core they often contain a germ of legitimacy. In 1942 a descendant of John Tweedie, Gilbert Ramsay Thomson (1868–1948), wrote³⁵ to the British government to request a pension as his Argentinian money was now unobtainable as a result of the hostilities of World War II. To substantiate his genuine claim to having British roots, among other evidence he stated: ‘My great grandfather Mr Tweedie was a botanist who corresponded with Prof. Darwin’.

John Tweedie was not a botanist, and never claimed to be, and Charles Darwin never held the title of professor. Notwithstanding these (perhaps understandable) inaccuracies, whether or not the two corresponded after any meeting in Buenos Aires has not been established; no letters are known to exist, although there may indeed have been correspondence that either no longer survives or whose location is not publicly known. But whatever the facts, Gilbert Thomson’s statement contains within it a central truth that was important to John Tweedie’s descendants: that there was a Darwin connection and a story that was worth telling. Beyond its importance to the family and to Darwin scholars, however, the interaction between Tweedie and Darwin tells us much about the processes of how naturalist-explorers of this period obtained the data that underpinned their published work. For Darwin, newly arrived in South America and trying to make sense of what he was seeing, local contacts were absolutely vital sources of both intelligence and specimens. Without these contacts, Darwin, exploring alone, would have needed many years to accumulate the information that he collected in a few months. Individuals such as Tweedie therefore acted as both signposts and conduits, guiding and facilitating on the basis of their local knowledge. Darwin was drawing on more than half a decade of Tweedie’s explorations in the region, just as Hooker was exploiting Tweedie’s abilities to collect and supply plant specimens. Despite his lack of higher education, at this stage in his life Tweedie was the expert (and Darwin the novice) providing guidance just as was the eminent Henslow back in Cambridge, although more limited and specialized in scope. Darwin was therefore building not only on the work of his peers and predecessors in science, but also on the more modest (but still vital) labours of relatively humble individuals. Neither Tweedie nor Darwin could have conceived of where this would ultimately lead.

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NOTES

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- 2 J. van Wyhe (ed.), *The complete work of Charles Darwin online* (2002–). See <http://darwin-online.org.uk/>.
- 3 Based on a survey using The International Plant Names Index; <http://www.ipni.org/>.
- 4 S. Liede-Schumann, A. Rapini, D. J. Goyder and M. W. Chase, 'Phylogenetics of the new world subtribes of Asclepiadeae (Apocynaceae–Asclepiadoideae): Metastelmatinae, Oxypetalinae, and Gonolobinae', *Syst. Bot.* **30**, 184–195 (2005). *Tweedia* and related genera comprise a taxonomically complex group of plants; see A. Rapini, J. F. Pereira and D. J. Goyder, 'Towards a stable generic circumscription in Oxypetalinae (Apocynaceae)', *Phytotaxa* **26**, 9–16 (2011).
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- 6 J. Tweedie, unpublished letter to William Hooker, April 1833, held in Directors' Correspondence, vol. 67, f. 196, in the archives of the Royal Botanic Gardens, Kew.
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- 9 A. Graham-Yool, *The forgotten colony: a history of the English speaking communities in Argentina* (Hutchinson, London, 1981).
- 10 According to one anonymous source in 1840: Anon., 'On Emigration, with reference to Gardeners; and on the Prospects of Botanical Collectors. By Peritus. Communicated by K.B.D.', *Gardener's Mag. Register Rural Domestic Improvement* **6**, 115–116 (1840).
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- 12 Tweedie, 'Mr. Tweedie's Journal', *op. cit.* (note 11).
- 13 Based on a search of Kew Herbarium's online catalogue: <http://apps.kew.org/herbcat/navigator.do>.
- 14 E. C. Nelson, 'Ninian Niven, Curtis's Botanical Magazine and the art of advertising new plants', *Curt. Bot. Mag.* **15**, 274–282 (2004).
- 15 M. Allan, *Darwin and his flowers. The key to natural selection* (Faber & Faber, London, 1977).
- 16 J. Hooker, 'Abutilon darwinii Hook. f.' *Curt. Bot. Mag.*, Tabula 5917 (1871). In the description of *A. darwinii*, Hooker notes that he 'received flowering specimens of this plant from my friend Mr. Darwin, in April last, with the information that he had raised it from seed transmitted by the learned German zoologist, Fritz Müller, of Itzigahy, in St Catherines, S. Brazil.' In the Kew Herbarium, Hooker had found dried specimens of an unnamed *Abutilon* sent by Müller in 1869; however, the earliest collections had been made by Tweedie in 1836, when he was collecting 'between the Island of St Sebastian & Rio de Janeiro' (J. Tweedie, unpublished letter to William Hooker, November 1836, held in Directors' Correspondence, vol. 67. f. 204,

in the archives of the Royal Botanic Gardens, Kew). Tweedie's handwritten notes on the specimens indicate that the plant was collected 'in shady woods at the summit of St. Joveir'. However, Hooker's reading of the locality is probably incorrect because, as he complains, 'Tweedie's writing and spelling are equally bad.' The place is more likely to have been St. Javier (Xavier), although the exact locality has yet to be determined. This is not the only example of Tweedie's living plant collections later providing material for evolutionary or genetical research: *Petunia integrifolia* is another instance. See also J. Endersby, *A guinea pig's history of biology* (Heinemann, London, 2007), in relation to Tweedie's *Passiflora* introductions.

- 17 Mr Arthur Thomson, personal communication (2010).
- 18 J. Tweedie, unpublished letter to William Hooker, April 1834, held in Directors' Correspondence, vol. 67, f. 199, in the archives of the Royal Botanic Gardens, Kew.
- 19 This issue is fully addressed in J. van Wyhe, "'My appointment received the sanction of the Admiralty": why Charles Darwin really was the naturalist of HMS *Beagle*' (unpublished manuscript).
- 20 *Ipomoea bonariensis* was said to be 'Common on ditch-banks about Buenos-Ayres, according to Mr. Tweedie who sent seeds of it to this country in 1826, and who observes that the plant has a large tuberous root'; see W. J. Hooker, 'Ipomoea bonariensis', *Curt. Bot. Mag.* **65** [series 2, vol. 12], Tabula 3665 (1839).
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- 22 Chancellor and van Wyhe, *op. cit.* (note 1).
- 23 *Ibid.*
- 24 T. J. Hutchinson, *Buenos Ayres and Argentine gleanings. With extracts from a diary of Salado exploration in 1862 and 1863* (Stanford, London, 1865).
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- 27 Letter to J. S. Henslow, 18 May 1837; see F. Burkhardt and S. Smith (eds), *The correspondence of Charles Darwin*, vol. 2 (1837–1843) (Cambridge University Press, 1986).
- 28 Darwin, C. R., [List of fossil wood specimens from the *Beagle*], NHM-408865-1001, transcribed by John van Wyhe (Darwin Online, <http://darwin-online.org.uk/content/frameset?viewtype=side&itemID=NHM-408865-1001&pageseq=1>). See also B. A. Thomas, 'Darwin and plant fossils', *Linnean* **25**, 24–42 (2009).
- 29 Chancellor and van Wyhe, *op. cit.* (note 1).
- 30 N. Barlow (ed.), *Darwin and Henslow. The growth of an idea* (Bentham-Moxon Trust, Murray, London, 1967). See also Darwin Correspondence Database, <http://www.darwinproject.ac.uk/entry192>.
- 31 See, for example, Barlow, *op. cit.* (note 30); D. M. Porter, 'Charles Darwin's Chilean plant collections', *Rev. Chil. Hist. Nat.* **72**, 181–200 (1999); R. Keynes (ed.), *Charles Darwin's zoology notes and specimen lists from H.M.S. Beagle* (Cambridge University Press, 2000).
- 32 C. R. Darwin, *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832–1836* (Colburn, London, 1839), p. 600.
- 33 C. R. Darwin, 'On the Banda Oriental side near to the dos Hermanas', CUL-DAR42.140, transcribed by Kees Rookmaaker, edited by J. van Wyhe (Darwin Online, <http://darwin-online.org.uk/content/frameset?viewtype=side&itemID=CUL-DAR42.140&pageseq=1>).
- 34 Tweedie, *op. cit.* (note 26).
- 35 G. R. Thomson, unpublished draft letter, September 1942, held in the family collection of Mr Arthur Thomson.