

John Lightfoot (1735–1788) and the lichens of *Flora Scotica* (1777)

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Abstract: John Lightfoot's account of lichens in *Flora Scotica* was the first Scottish lichen Flora and as such it was novel in several respects: 1) it was published in English; 2) it drew on the knowledge and expertise of several key local collectors and treated lichens from alpine areas for the first time; 3) it made lichens accessible in providing Linnaean binomials, colloquial English, and frequently also Gaelic names, together with lively descriptions, details of ecology, and medicinal or traditional uses when these were known. Of the 117 taxa listed, 109 were classified in the genus *Lichen*, five in *Byssus*, two in *Mucor* and one in *Fucus*. Nineteen taxa were newly described, of which five are still in current use. John Lightfoot's life, work and botanical friendships are also briefly discussed.

Key words: Brian Coppins, Joseph Banks, Scottish lichens, Thomas Pennant, traditional uses

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Introduction



FIG. 1. Rev. John Lightfoot MA, FRS [Linnean Society of London (see Marsden 2001)].

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John Lightfoot

John Lightfoot (1735–1788) was born in Newent on the edge of the Forest of Dean in Gloucestershire. He was educated at the Crypt School, Gloucester and in 1753 he entered Pembroke College, Oxford, as an exhibitor. He graduated B.A. in 1756 and was awarded an M.A. in 1766. Writing of Lightfoot, his friend Thomas Pennant (1726–1798) observed:

“... He was an excellent scholar in many branches of literature; but after the study of his profession, he addicted himself chiefly to that of botany and conchyliology. He excelled in both: but in the former I may say, that in Great Britain he was nearly unrivalled. I can only speak of my respected friend Mr. William Hudson, and conjoin him in the same sentence. He was equally versed in the knowledge of foreign as of British botany. He never hid his talents, or thought them impaired by the communication. No one ever possessed so liberal a turn, or took such great pains to enlighten those who were less conversant in those studies...” (Pennant 1789: vii).

Lightfoot took Holy Orders on leaving Oxford, being appointed perpetual curate at Colnbrook, Middlesex, which included a ‘lectureship’ [teaching six poor boys how to read and write] and a house at Uxbridge, in which he lived until his death. He also held the living of Shalden in Hampshire from 1765–1777, becoming acquainted with Gilbert White at nearby Selbourne (Bowden 1989; Bryant *et al.* 2012).

Like so many churchmen, Lightfoot used his spare time for the observation of nature and in botanical study and research. Resulting from this avocation, Lightfoot was chosen in 1767, at the age of 31, to become chaplain and librarian to the Dowager Duchess of Portland (Cook 2007) at Bulstrode Park, her country estate near Beaconsfield in Buckinghamshire. As a collector of natural history objects in Britain, none could compare:

“... either in scale or munificence ... with Lady Margaret Cavendish Bentinck, the wife of the second Duke of Portland, whom she married at the age of 20 in 1734. For the next 50 years most of her time and energies and more than all of her very substantial fortune went to the forming of an immense collection not only in natural history, in all its conceivable

branches, but also in realms of the fine arts such as porcelain. The collection was certainly the largest in Britain, quite possibly the largest in Europe: its eventual sale by auction after her death required 38 days...” (Allen 1976).

Besides his official duties at Bulstrode, Lightfoot devoted himself to the study of botany and conchology (Pennant 1789; Henrey 1975; Bowden 1989; Bryant *et al.* 2012).

Lightfoot had a genius for friendship, and easily made and kept friends through a mutual interest in, and exchange and circulation of, plant specimens. One of his closest botanical friends was Joseph Banks. Banks was educated at Eton and Christ Church, Oxford (1760–1765) and early on developed a lively and enquiring interest in plants (Smith 1911; Beaglehole 1962; Lysaght 1971; Carter 1988). Their shared passion for plants is well illustrated in a letter that Lightfoot wrote to Banks on 27 February 1766, when lichens were particularly mentioned:

“... Dear Sir,

When Pythagoras discovered his golden Proposition he is said to have run about the streets like a Madman crying out in Extasies *ἑρηκα, ἑρηκα*: I had like to have done the same, when I open'd your Letter & saw Banks at the Bottom of it. I have been in London for two Months past, except on Sundays; and not one of our Botanical Acquaintance could give me the least Intelligence of you. I began to be afraid lest you had taken a Freak, & been gone to botanize on the Banks of the River Styx, or in the Elysian Fields. I am heartily glad to find you continue with us in the Regions above; and I sincerely thank you for the Specimens you have been so kind as to send me ... I was at Bristol at Christmas; & tho' the Season was then so dead, I climb'd to the Top of St Vincent's Rock, & found there ... Lichen centrifugus. At my own Parish of Shalden near Alton in Hampshire, where I was about a Week afterwards, I found a great plenty of Lich: *articulatus*, & some few small specimens of *L. vulpinus*. These I think are most of ye Acquisitions I have made since I had the Pleasure of seeing you last. I have lately receiv'd a large Cargo of Grasses & Mosses from an indefatigable Correspondent of mine in Yorkshire, who spares no Pains to make what Discoveries for me he can. Among several rare ones, he has sent one new Species not mentioned in Hudson. It is the Lich: *apthosus* Lin. as Solander informs me. I hope you'll come & see me & partake of my Collection what you want ... I am glad to hear you are in so good a Country for the Mosses. I have no doubt but your Lynx Eyes join'd to your Diligence will be the Source of many Discoveries. Be so kind as to let me know when you are

in Town, or when you can favour me with a Visit, & you will render entirely happy your sincere Friend and Brother Philobot. John Lightfoot” (Lysaght & Cannon 1973; Chambers 2007a).

Other friends with whom Lightfoot corresponded regularly included William Curtis (1746–1799), Thomas Pennant (1726–1798), Sir John Cullum (1733–1785) and Gilbert White of Selbourne (Dawson 1958; Bowden 1989; Bryant *et al.* 2012).

The Scottish journey 1772

In 1771 Thomas Pennant, the zoologist and antiquary, published *A Tour in Scotland and Voyage to the Hebrides; MDCCLXXII*, describing a journey that he made in 1769. Of this he observed that he had: “. . . the hardihood to venture on a journey to the remotest part of North Britain” of which he brought back an account so favourable that “. . . it has ever since been inondée with southern visitors” (Pennant 1771). On his second Scottish tour Pennant invited Lightfoot to accompany him on a projected five-month visit, along with the Scottish clergyman John Stuart of Killin, fluent in Gaelic and knowledgeable about Highland customs, geography and people. The artist/engraver Moses Griffiths (1749–1819) completed Pennant’s team. Lightfoot wrote warmly of Pennant who:

“. . . kindly invited me to partake of his company, and did every thing in his power to promote and facilitate my journey: a journey I was desirous to undertake, not only as it promised much variety of amusement and instruction, but as it flattered me in a particular manner with a fair opportunity of gratifying a favourite affection I had long conceived for the science of Botany, while it afforded the enchanting prospect of examining a country whose vegetable productions had been attended by very few” (Lightfoot 1777: v–vi).

Details of the Scottish tour are discussed in several works (Fletcher 1959; Fletcher & Brown 1970; Bowden 1989), and Lightfoot himself gives a concise account of their travels:

“. . . it may not be amiss briefly to acquaint the reader, what were my own preparative qualifications for the undertaking . . . I would wish therefore to let him know, that the entertaining science of Botany had been the constant amusement of my rides and walks for upwards of sixteen years, previous to my

tour in *Scotland*; that in this tour I travelled either by land or sea from the south of *Ammandale* to the borders of *Sutherland*, visited most of the *Hebrides*, except the *Long Island*, traversed the kingdom from *Argyleshire* to the county of *Mearns*, that is, from the western to the eastern shore, and afterwards returned to *England* by way of *Edinburgh* and *Kelso*; that in all this tract, which took up the daily exercise of a whole summer, I had a constant eye to the following work, embraced every opportunity of scaling the highest mountains, climbing the most rugged rocks, penetrating the thickest woods, treading the fallacious bogs, winding upon the shores of seas and lakes, in short, of examining every variety of land or water, which promised to produce a variety of vegetables. . .” (Lightfoot 1777: xv–xvi).

Although Lightfoot collected over 100 different lichens on the Scottish tour, including many from mountainous areas for the first time, James Robertson collected 16 lichens from the Isle of Bute in 1768 (Dickson 1986) so his collections, alas now lost, precede those of Lightfoot.

The Welsh Journey 1773

In June 1773, Joseph Banks planned a visit to Wales with a “philosophic” party of his friends, to include Jesse Ramsden, André de Luc, Charles Blagden, John Lightfoot, Charles Greville, William Curtis and Paul Sandby (Carter 1988). In response to Banks’s invitation, Lightfoot wrote on 19 June 1773:

“. . . Unfortunately, the Duchess of Portland is gone to Oxford, & I shall not see her till next Week; so that I am not yet able to determine whether it will be in my Power to have that singular Pleasure (which I ardently wish for) of climbing with you the Rocks of Snowdon and Caderidris. . .” (Chambers 2007a: 48).

As it turned out, the party finally consisted of Banks, Lightfoot and the artist Paul Sandby. They travelled to Edwinstford belonging to Banks’s uncle, Robert Banks-Hodkinson, and over the next seven weeks moved west to Pembrokeshire and then north through Hereford and Shropshire. John Lloyd joined them at Denbigh and together they climbed Snowdon, visited Anglesey and finally Chester before returning to London (Riddlesdell 1905; Smith 1911; Hughes 1975; Carter 1988; Bowden 1989). From Uxbridge, Lightfoot wrote warmly to Banks on 24 August 1773:

“... My Gratitude will be for ever indebted to you for the numberless Pleasures you have treated me with, & the many Advantages I receiv’d in your Company during our Welch Tour, and yet, you still continue to encrease the Debt by your Politeness in saying I was useful to you. If I was in any Degree, it gives me a very sensible Pleasure, as I can truly say I never became a Party in any Scheme which afforded me more Satisfaction or sincere Delight. It was a journey, above all others I wish’d to take, & I had every circumstance accompanying it that could render it most agreeable. We certainly were most remarkably successful, tho’ we did not find *every individual* Plant we wish’d for; for I believe it may without Vanity be said, that few, if any, Botanical Excursions in Great Britain have exceeded our Collection, either in Number or Rarity of Plants or Places...” (Bowden 1989: 93; Chambers 2007a: 50).

A month earlier Lightfoot wrote rapturously to Gilbert White of the trip:

“... I have this summer, in company with Mr. Banks, been making the tour of North and South Wales... Wales in general behaved to us with great politeness. We had fine weather through the whole journey; we found the greatest hospitality, a multitude of plants, and five or six not before discovered in South Britain, though I had before seen them in Scotland. Snowdon was very complaisant; three times we scaled his highest top, once enveloped in clouds that we could not discern each other at twenty yard’s distance; but no sooner had we refreshed ourselves with our necessary *viaticum* than the clouds withdrew, and gradually discovered to our wondering eyes the most glorious prospects we ever beheld... the British Alps, the Irish Sea, and coast of Ireland, almost all North Wales; the coasts of Lancashire and Cumberland, with the Islands of Anglesea and Man, appeared at one view, like a great map spread beneath us...” (Bowden 1989: 92).

Lightfoot’s notes of the trip, transcribed by Sigismund Bacstrom, are in the Botany Library of the Natural History Museum and were published by Riddlesdell (1905). In 1775, the artist Paul Sandby published a series of twelve aquatint views of South Wales, from sketches made on the trip with Lightfoot and Banks, with a dedication to the “Hon. Charles Greville and Joseph Banks Esquire by their ever grateful and much obliged servant Paul Sandby R.A.” (Joppien 1994).

The *Flora Scotica*

Lightfoot’s *Flora Scotica* is of importance in that it was the first flora of the northern part

of the British Isles in which Linnaean binomials were used. The flora treated all groups of plants and fungi, and it has considerable lichenological importance because of the 19 lichens for which new binomials were published, several of which provide basionyms for currently accepted taxa.

According to Thomas Pennant the *Flora Scotica* “... appeared in 1778” (Pennant 1789: ix). However, in *The literary life of... Thomas Pennant, Esq, by himself* (1793) we read: “... I published, at my expence, in 1777, the *Flora scotica*, in two volumes, octavo” (Henry 1975, Vol. 3: 74). It was later established that *Flora Scotica* “...most probably appeared on 22 September 1777” (Price 1968). Lightfoot’s book of two octavo volumes (Fig. 2) was dedicated to “Her Grace the most noble Margaret Cavendishe Duchess Dowager of Portland, that great and intelligent admirer and patroness of natural history in general...”. Of the 35 plates in *Flora Scotica*, two contain lichens, *Lichen burgessii* and *L. plumbeus* figured between pages 826 and 1826 (Fig. 3) and *Fucus pygmaeus*, figured opposite page 964, and are sympathetically rendered by Moses Griffiths.

Lightfoot’s arrangement of the lichen text in *Flora Scotica* closely followed that of Linnaeus (1753, 1771, 1774) and Hudson (1762) and he carefully explains his method in the Preface (Lightfoot 1777: vii–x). For each species a polynomial diagnosis in Latin was provided, with the specific epithet placed in the margin. Lightfoot’s polynomials are taken with little or no modification from Linnaeus or Hudson. The diagnosis was then followed by citations of previously published illustrations including Morison (1699), Tournefort (1700), Petiver (1702–1709), Loeselius (1703), Barrelier (1714), Ray (1724), Vaillant (1727), Buxbaum (1728), Micheli (1729), Linnaeus (1737), Haller (1742), Dillenius (1742) and Oeder (1762). Lightfoot was familiar with the Dillenian herbarium at Oxford, and throughout his lichen text there are several references to Lightfoot having carefully examined Dillenius’s specimens. In his Preface he states:

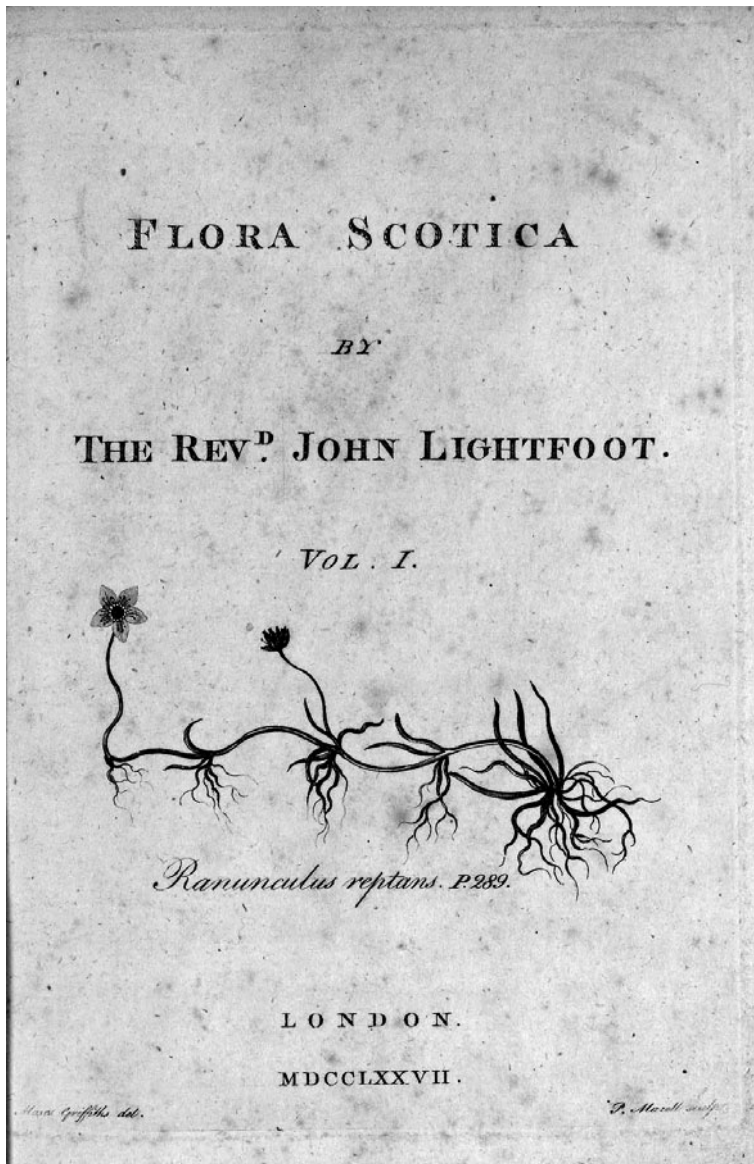


FIG. 2. Title page of *Flora Scotica* 1777 [Lightfoot's interleaved copy, National Library of Scotland].

“... Nor will gratitude allow me to forget the obligations I owe to the friendly indulgence of Dr. *Sibthorpe*, Professor of Botany at *Oxford*, who with great freedom and kindness permitted me to examine Dr. *Dillenius*'s celebrated collection of mosses now in his custody, and thereby enabled me to solve many doubts and difficulties among the numerous species of that minute tribe of vegetables...” (Lightfoot 1777: xv).

Occasionally, references to illustrations are followed by synonyms (mainly as binomials but sometimes earlier polynomials are also given). For all lichens an English vernacular name is given, some following Hudson (1762) but many coined by Lightfoot. For example, where Hudson gives “red lichen” for *Lichen*

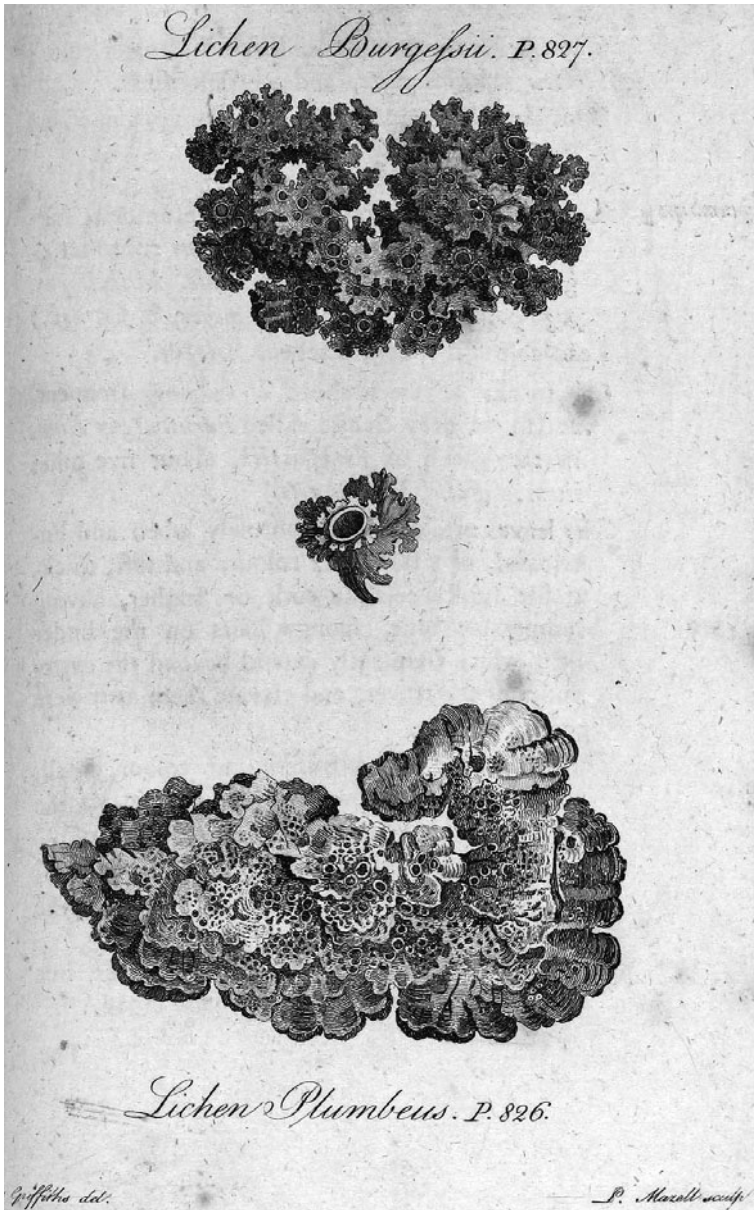


FIG. 3. Engraved plate of *Lichen burgessii* and *L. plumbeus* [Lightfoot's interleaved copy, National Library of Scotland].

ventosus (Hudson 1762: 527), Lightfoot gives "red-spangled tartareous Lichen" (Lightfoot 1777: 806). When known, a Gaelic name is then given, the names being supplied by John Stuart. There then follows a brief mention of the ecology and distribution of the lichen. As an example, for *Lichen saxatilis*

Lightfoot gives: "Upon trunks of trees, rocks, tiles, and old wood, very common". Lightfoot's comments on individual species are much more extensive than those of Hudson, and especially in the often quite detailed descriptions of morphology and apothecia [following Dillenius (1742), Linnaeus (1753,

1771, 1774), Hudson (1762) and Scopoli (1772), Lightfoot refers to both male and female states] that embellish Lightfoot's treatments. His description of the new species, *Lichen laetevirens* (= *Lobaria virens*), demonstrates his considerable ability of catching the essential details of the lichen being considered, no doubt after careful study:

"... The leaves are two or three inches long, expanded contiguously to the breadth of a man's hand, or more. They are variously lacinated, and divided into round obtuse crenated lobes at the extremities. Their substance is thin, but coriaceous; their upper side smooth, without pits, and of a fine green colour; the under side whitish, or buff-colour'd, smooth at the margins, but covered every where else with a slight tawny down, mixed with pale fibrous radicles. The shields are numerous, of various sizes, and grow upon the disc of the leaves. At first they appear only like small tubercles, or *papillae*, with a point in the centre. Afterwards they dilate, and become some of them 1–3d of an inch in diameter, of a tawny red colour, surrounded with a greenish margin, concave at first, but almost plain when old.

Such is the state of the recent plant, but, when dry'd, the leaves change first to a greenish ash-colour, and afterwards to a fuscous or livid ash-colour, and the shields to a brown red. This species has escaped the notice of Linnaeus" (Lightfoot 1777: 852–853).

He explains his comments on traditional uses as:

"... Their *oeconomical* and *medical* uses are extracted from authors of the first credit; for the most part either from *Linnaeus's Materia Medica*, or *Haller's Historia stirpium Helvetiae*. For their superstitious uses I am chiefly indebted to my often-mentioned friend Mr. *Stuart*, a native of the *Highlands*, and perfectly acquainted with the customs of his countrymen..." (Lightfoot 1777: x)

An example of traditional use is given for *Lichen tartareus*:

"... This Lichen is much used by the Highlanders in dying a fine claret or pompadour colour. For this purpose, after scraping it from the rocks, and cleaning it, they steep it in urine for a quarter of a year. Then, taking it out, they make it into cakes, and hang them up in bags to dry. These cakes are afterwards pulverized, and the powder is used to impart the colour, with an addition of alum to fix it" (Lightfoot 1777: 812).

And for *Lichen caninus*:

"... The *L. caninus* has a disagreeable musty taste. Half an ounce of the leaves, dry'd and pulverized, and mixed with two drachms of powdered black

pepper, compose the once-celebrated *Pulvis antilyssus*, formerly much recommended by the great Dr. *Mead*, for the cure of canine madness. This medicine was to be divided into four equal portions, one of which was to be taken by the patient every morning, fasting, for four mornings successively, in half a pint of warm cow's milk; after which he was to use the cold bath every morning for a month. It is much to be lamented that the success of this medicine has not always answered the expectation. There are instances where the application has not prevented the *Hydrophobia*; and it [is] even uncertain whether it has been at all instrumental in keeping off that disorder" (Lightfoot 1777: 846–847).

Lichens in *Flora Scotica* are listed in the order in which they appeared in the book in Appendix I (see below), which also gives current accepted names and appropriate references where necessary. In Lightfoot's treatment, 103 numbered lichens (in fact representing 109 taxa) were placed in the genus *Lichen*, the specific epithets appearing in the margin of the text. Eighteen of these were newly described viz: *Lichen scriptus* var. *hebraicus* Lightf., *L. scriptus* var. *pulicaris* Lightf., *L. caeuloeo-nigricans* Light., *L. aurantiacus* Lightf., *L. cartilagineus* Lightf., *L. pullus* Lightf., *L. plumbeus* Lightf., *L. vespertilio* Lightf., *L. laete-virens* Lightf., *L. glomeliferus* Lightf., *L. mimiatus* var. *complicates* Lightf., *L. crinitus* Lightf., *L. torrefactus* Lightf., *L. tubiformis* Lightf., *L. alpicornis* Lightf., *L. hispidus* Lightf., *L. corniculatus* Lightf., and *L. exilis* Lightf. In addition, five lichen species were included in *Byssus*, one (new) in *Fucus* (*F. pygmaeus* Light.), and two in *Mucor*. Of the 19 new species described by Lightfoot, five are still in current use today as: *Degelia plumbea*, *Dermatocarpon minutum* var. *complicatum*, *Lichina pygmaea*, *Squamarina cartilaginea* and *Umbilicaria torrefacta*. A list of 22 lichens is also included in the "Catalogue of plants growing in Edinburgh Park communicated by Mr Yalden" (Lightfoot 1777: 1148)

Lightfoot's text was in English, insisted upon by Thomas Pennant who paid for the book's publication. This was an innovation, adopted also by Withering (1776, 1796), since Hudson's books dealing with British lichens were written in Latin (Hudson 1762, 1778). In his Preface, Lightfoot stated that he avoided the use of any synonyms:

“... to make way for descriptions, which I flatter myself will prove of more service” (Lightfoot 177: x), and defending his use of English “... I chose to write the descriptions and uses of plants in English rather than in Latin ... to comply with the request of my best friends. Neither do I think it any objection ... as it was written purely for the use of my countrymen, who will understand it never the worse for being in their own tongue” (Lightfoot 1777: xi).

He also excused himself from imputations of arrogance at attempting a systematic arrangement of Scottish plants after only one summer’s fieldwork in the following fashion:

“... indeed the imputation would be just, if I had not received the greatest assistance therein from able and ingenious botanists, who have resided in that country their whole lives: gentlemen, who have not only permitted me to examine their valuable collections, but have freely communicated to me the observations of many years...” (Lightfoot 1777: xii).

Lightfoot then acknowledges the help of Dr John Hope, Professor of Botany at Edinburgh University, for access to his herbarium, notes and observations, and also the Rev. Mr Stuart of Killin and Luss:

“... for every assistance that ingenuity and friendship could yield. This young gentleman, a most accurate observer of Nature’s works, and critically vers’d in the *Erse* language, and the manners and customs of his country, I had the good-fortune to share as a companion and fellow-traveller through the *Highlands* and *Hebrides*; and to him I am obliged for a great portion of the *Highland* botany, for many of the *medical* and *oeconomical*, and all the *superstitious* uses of plants which are interspersed in this work, and to him I owe the supply of their *Erse* or *Gaulic* names” (Lightfoot 1777: xii–xiii).

He goes on to acknowledge the Rev. Dr Burgess of Kirkmichael, for sharing his great knowledge of lowland plants, and of their uses and local names. It was Burgess who communicated to Lightfoot specimens of *Lichen plumbeus*, from which the description was made (Lightfoot 1777: 826–827). And finally he acknowledges Dr Parsons, Professor of Anatomy at Oxford, and Thomas Yalden, for their collections of Scottish plants made while studying medicine at Edinburgh. Of these, Burgess, Stuart and Yalden are recorded as collectors of lichens discussed in *Flora Scotica*, Stuart notably contributing the rare lichen *Solorina crocea* from the summit of Benteskerney.

Lightfoot also collaborated closely with Joseph Banks in the preparation of *Flora Scotica*. In his Preface he acknowledged:

“... the respectable and celebrated names of Joseph Banks Esq; and Dr. Solander, the two great philosophical luminaries of this nation; gentlemen who were ever ready to elucidate a difficult subject, and who never fail’d to dispel the obscurity which surrounded any dubious plant” (Lightfoot 1777: xv).

This extended also to discussion of lichens, which was an early interest of Banks, who at that time had in his library a bound volume of the first 79 plates of Dillenius’s original illustrations to *Historia Muscorum* (Bridson *et al.* 1980: 176), which is Banksian MS. no. 56 in the Botany Library of the Natural History Museum. In a letter to Banks written on 21 March 1776, Lightfoot asks for help with placing a collection made in the mountains of Arran:

“... I enclose for your Inspection and Use a Plant I found upon the wet Rocks, & sometimes dry ones, near the Top of a high Mountain call’d Goatfield in the Isle of Arran. I know not well what Genus to refer it to, whether Lichen or Conferva. I suspect it to be *Dillenius’s Usnea Hist. musc. t.13.f.9* but he says of that, *fila glabra sunt & splendent*, which by no means agrees with mine. However, if it be not *that*, I suppose it must be a nondescript; for I know it is neither *Lichen pubescens* nor *Byssus nigra*, both of which I have. And here it may be worth while to remark that Linnaeus has quoted a wrong Figure for his *Lichen pubescens*; as I learnt from having seen Dillenius’s original specimen at Oxford. The Figure which properly belongs to *L. pubescens* is that of Dillen. t.17.f.32, which Linnaeus most unaccountably has made a Variety of *L. Islandicus*. Eternal Blunders! To be sure he meant to quote t.17.f.31, for his Variety of *L. Islandicus*, and even that I believe a species; for I have seen its Fructifications. But ... for Botany’s sake, what shall we call the plant I have sent you? Is it a Lichen or a Conferva? Be pleased to moisten a Bit of it & put it under the Microscope, and you will find it, I think, not properly geniculated, but warted or scabby all over. Something very like this I have observ’d upon many of the fruticulose & filamentose Lichens. But you will ask me perhaps, where are the *Verrucae* or *Scutella* to constitute it a Lichen? I answer by another Question, where are they to be found on the *L. hirtus* or *articulatus*?

Pray be so good as to help me out of this Labyrinth, & favour me with yr opinion, that I may know where properly to place this little black Devil in my poor paltry diabolical System” (Chambers 2007a: 90–91).

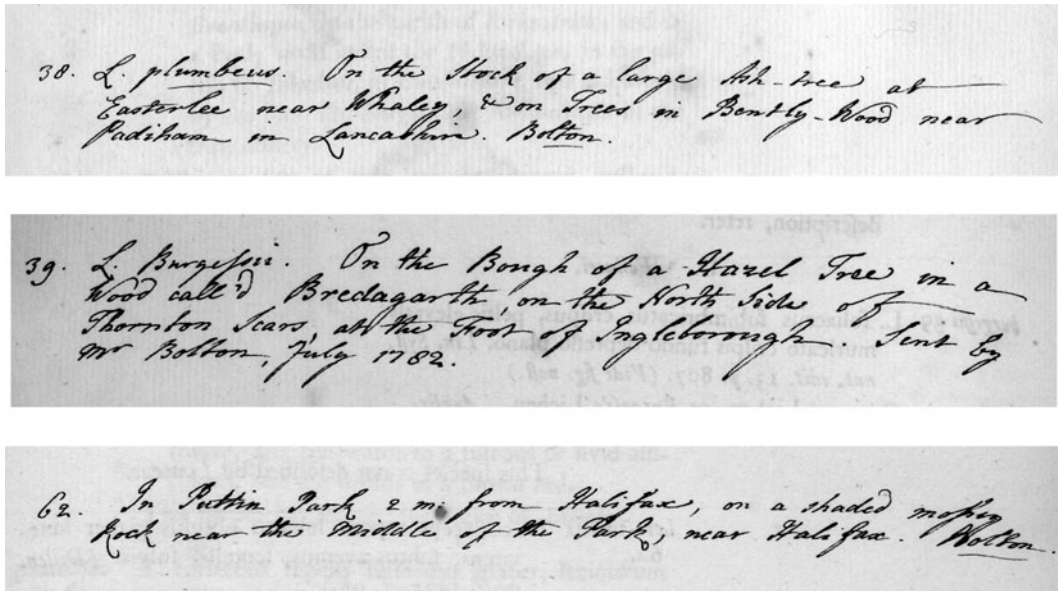


FIG. 4. Lightfoot's annotations for *Lichen burgessii*, *L. plumbeus* and *L. laetevirens* [Lightfoot's interleaved copy, National Library of Scotland].

It is not known what Banks's reply to Lightfoot was, but it duly appeared under the name *L. exilis* Lightf., with the vernacular name of "little tufted black lichen" and referring to Dillenius (1742: t.13.f.9). Lightfoot noted of it:

"... It forms close black matted tufts, from the breadth of a shilling to that of a crown piece, consisting of numerous very fine capillary filaments, about a quarter of an inch long, irregularly branched, and entangled together, their extremities generally a little curled or curved. These filaments are not smooth and glossy, but somewhat rough and opaque [sic.], and when moistened in water, are of a soft flexible substance, and dark olive in colour, and, being highly magnified, appear scabby, or covered over with numerous black-green leprous tubercles. We discern'd no fructifications. The plant seems nearly related to the genus of *Conferva*, from its delighting in wet places, but the filaments of it not being jointed, determined us to give it a place among the *Lichens*" (Lightfoot 1777: 895)

This illustrates the considerable care and detail that Lightfoot included in his descriptive comments, which make his treatment of lichens still of great interest today and a pleasure to read. Later authors [e.g. Acharius 1799; Davies 1811; Leighton 1879 – though

oddly not Hawksworth (1972) who seems to have overlooked it] placed Lightfoot's *L. exilis* in what is now known as *Pseudephebe pubescens*.

The Scottish lichens exercised Lightfoot a great deal, as a letter to his friend William Curtis shows. On 17 March 1777, with Lightfoot's work on *Flora Scotica* well advanced, he wrote:

"... I have writ almost a Volume upon Lichens. How the Publick will receive it I know not, but certain I am that it has cost me infinite Pains. Pray come & give me a Day's Pleasure, that I may relax a little from severe study, and recruit my Spirits" (Bowden 1989: 101).

Lightfoot's interleaved copy of *Flora Scotica*, with manuscript additions by the author, is held in the Department of Manuscripts, National Library of Scotland in Edinburgh (Adv. MS. 23.5.11) (Bridson *et al.* 1980; Bowden 1989). Apparently Lightfoot had the interleaved copy made so that he could incorporate new records and additional information towards a revised second edition (Bowden 1989). Included in Lightfoot's hand (Fig. 4) as annotations, are English

localities of *Lichen burgessii*, *L. laetevirens* and *L. plumbeus* sent to him by James Bolton, the exceptional Halifax naturalist/mycologist (Watling & Seaward 1981; Allen 2010), who also collected for the Duchess of Portland.

Lightfoot's lichen work in *Flora Scotica* was quickly taken up by both Swedish and continental lichenologists, including Olof Swartz (1781, 1784; Galloway 2013), G. F. Hoffmann (1784) and Erik Acharius (1799, 1803, 1810, 1814), with several of his names subsequently enjoying wide currency. Lightfoot's book remained the only authoritative work on Scottish plants, including lichens, until 1821 when William Jackson Hooker published his own *Flora Scotica* (Hooker 1821). This work has a much more extensive treatment of lichens and especially of the Highland mountains where the collections of James Dickson, G. Don, Dawson Turner, William Borrer (Laundon & Waterfield 2007), Archibald Menzies, James Edward Smith and Hooker himself added significantly to the initial explorations of Lightfoot, Stuart and Burgess of 40 years earlier. In his Preface, Hooker referred to Lightfoot's compilation as "... a great mass of curious and valuable matter, selected with judgement when it is a compilation, and admirable where it is original" (Hooker 1821: viii), which is a fine encomium.

Although Lightfoot's herbarium has in part survived at Kew, with the algae now at the Natural History Museum (Britten 1915; Dixon 1959, 1983; Bryant *et al.* 2012), the sections of the Lightfoot herbarium dealing with the Fungi and Lichens are still missing (Dixon 1959).

Lightfoot was elected a Fellow of the Royal Society in 1781, and was to have been one of the foundational Fellows of the Linnean Society, established in London on the 26 February 1788 (Gage & Stearn 1988; Bryant *et al.* 2012). However, he died at Uxbridge, Middlesex on 20 January 1788. He was only 52. Banks sent an identical letter to both Charles L'Heritier and to Johann Hedwig in June of that year, informing them that:

"... The melancholy news of the death of our Esteemd Friend Mr Lightfoot has no doubt come to your ears before now. He died very suddenly by a gouty spasm in his stomach. His Botanic Collections, which were very respectable have been purchas'd by the Queen as her majesty has lately applied herself considerably to the study of Botany. They will, I hope, have due honor done to them..." (Chambers 2000, 2007b).

Lightfoot's legacy to us today is seen in the epithets he gave for the lichens that we know today as *Degelia plumbea*, *Dermatocarpon minutum* var. *complicatum*, *Lichina pygmaea*, *Squamarina cartilaginea* and *Umbilicaria torrefacta*, with *Lichina pygmaea* growing on sea-shore rocks of every continent and major landmass, and familiar to most lichenologists. For this last species it is entirely fitting that a collection of Brian Coppins should be chosen as its lectotype (Jørgensen 2007). From Scotland to the ends of the earth is something that Lightfoot could never have remotely guessed at, but in his epithet for the cosmopolitan *Lichina pygmaea*, we have both his gift and his memorial.

It is a pleasure to acknowledge the valuable assistance of Maria Castello (National Library for Scotland) and Ben Sherwood (Linnean Society of London) in the preparation of this account. The plates and annotated pages from Lightfoot's interleaved copy of *Flora Scotica* are reproduced by the kind permission of the Trustees of the National Library of Scotland (Edinburgh). The portrait of Lightfoot is reproduced with the permission of the President and Council of the Linnean Society of London. I am also grateful to the late Dr Averil Lysaght (London) for drawing my attention many years ago to the charming letters of Lightfoot preserved in the Dawson Turner transcripts of the Banks correspondence at the BM (see Dawson 1958), and now more widely available in Neil Chambers's scrupulously edited collections. Special thanks to Janet Ledingham (Dunedin) for her help with preparing the figures.

The cheerful optimism of Lightfoot (see above) revealed in his letters to Banks and other friends, in retrospect, reminds me very much of Brian Coppins. So as a contribution to this Festschrift, I offer an account of the man who first put Scotland's lichens on the map, and indeed, into a book, John Lightfoot. The name Brian Coppins, for several decades now, has been synonymous with Scottish lichenology, and of course much else besides. As the late Frank Brightman once remarked of him "Coppins works extremely hard, usually at something he shouldn't be doing" (Gilbert 2004: 20), but Scotland and its lichens have been his "home ground"

since 1974 (Gilbert 2000, 2004; Coppins 2003), and from Edinburgh his influence, interest, infectious enthusiasm and selfless assistance has radiated to all parts of the world, informing and enriching very many aspects of modern lichenology. Thank you Brian.

REFERENCES

- Acharius, E. (1799) [‘1798’] *Lichenographiae Suecicae Prodromus*. Linköping: D. G. Björn.
- Acharius, E. (1803) *Methodus Qua Omnes Detectos Lichenes*. Stockholm: F. D. D. Ulrich.
- Acharius, E. (1810) *Lichenographic Universalis*. Göttingen: I. F. Dankwerts.
- Acharius, E. (1814) *Synopsis Methodica Lichenum*. Lundae: Svanborg et Soc.
- Allen, D. E. (1976) *The Naturalist in Britain*. London: Allen Lane.
- Allen, D. E. (2010) *Books and Naturalists*. The New Naturalist Library, Vol. 112. London: Harper Collins.
- Barrrelier, C. (1714) *Plantae per Galliam, Hispaniam et Italiam Observante*. Paris: S. Ganeau.
- Beaglehole, J. C. (1962) *The Endeavour Journal of Joseph Banks 1768–1771. Vol. 1. Introduction. The Young Banks*. Sydney: Angus & Robertson.
- Bowden, J. K. (1989) *John Lightfoot: his Works and Travels, with a Bibliographical Introduction and a Catalogue of the Lightfoot Herbarium*. Kew & Pittsburgh: The Bentham-Moxham Trust, and Hunt Institute for Botanical Documentation.
- Bridson, G. D. R., Phillips, V. C. & Harvey, A. P. (1980) *Natural History Manuscript Resources in the British Isles*. London: Mansell; New York: R. R. Bowker Co.
- Britten, J. (1915) The herbarium of John Lightfoot. *Journal of Botany* **53**: 269–271.
- Bryant, J. A., Irvine, L. M. & Ruffle, E. (2012) Insights into the life and work of the Rev. John Lightfoot (1735–1788), with particular reference to his algal herbarium and its conservation. *The Linnean* **28** (1): 26–43.
- Buxbaum, J. C. (1728) *Plantarum Minus Cognitarum Centuria*. St Petersburg: Ex Typographia Academiae.
- Carter, H. B. (1988) *Sir Joseph Banks 1743–1820*. London: British Museum (Natural History).
- Chambers, N. (ed.) (2000) *The Letters of Sir Joseph Banks. A Selection, 1768–1820*. London: Imperial College Press.
- Chambers, N. (ed.) (2007a) *Scientific Correspondence of Sir Joseph Banks, 1765–1820, Vol. 1. The Early Period, 1765–1784. Letters 1765–1782*. London: Pickering & Chatto. [letters 2, 41, 43, 81]
- Chambers, N. (ed.) (2007b) *Scientific Correspondence of Sir Joseph Banks, 1765–1820, Vol. 3. The Middle Period, 1785–1799. Letters 1785–1790*. London: Pickering & Chatto. [letter 847]
- Cook, A. (2007) Botanical exchanges: Jean-Jacques Rousseau and the Duchess of Portland. *History of European Ideas* **33**: 142–156.
- Coppins, B. J. (2003) Lichen conservation in Scotland. *Botanical Journal of Scotland* **55**: 27–38.
- Davies, H. (1811) Remarks on *Lichen scaber* and some of its allies. *Transactions of the Linnean Society* **11**: 79–85.
- Dawson, W. R. (ed.) (1958) *The Banks Letters. A Calendar of the Manuscript Correspondence of Sir Joseph Banks Preserved in the British Museum, the British Museum (Natural History) and Other Collections in Great Britain*. London: British Museum (Natural History).
- Dickson, J. H. (1986) James Robertson and the botany of Bute, 1768. *Watsonia* **16**: 65–74.
- Dillenius, J. J. (1742) [‘1741’] *Historia Muscorum*. Oxford: Sheldonian Theatre.
- Dixon, P. S. (1959) Notes on two important algal herbaria. *European Journal of Phycology* [formerly *British Phycological Bulletin*] **1**(7): 35–42.
- Dixon, P. S. (1983) The algae of Lightfoot’s *Flora scotica*. *Bulletin of the British Museum (Natural History) Botany* **11**(1): 1–15.
- Fletcher, H. R. (1959) Exploration of the Scottish Flora. *Transactions of the Botanical Society of Edinburgh* **38**: 30–47.
- Fletcher, H. R. & Brown, W. H. (1970) *The Royal Botanic Garden Edinburgh 1670–1970*. Edinburgh: Her Majesty’s Stationery Office.
- Gage, A. T. & Stearn, W. T. (1988) *A Bicentenary History of the Linnean Society of London*. London: Academic Press.
- Galloway, D. J. (2013) Olof Swartz’s contributions to lichenology, 1781–1811. *Archives of Natural History* **40**: 20–37.
- Gilbert, O. [L.] (2000) *Lichens. The New Naturalist* **86**. London: Harper Collins.
- Gilbert, O. [L.] (2004) *The Lichen Hunters*. Sussex: The Book Guild Ltd.
- Haller, A. von (1742) *Enumeratio Methodica Stirpium Helvetiae Indigenarum*. Göttingen: ex Officina Academica Abrami Vandenhoek.
- Hawksworth, D. L. (1972) Regional studies in *Alectoria* (Lichenes) II. The British species. *Lichenologist* **5**: 181–261.
- Heiðmarsson, S. (2000) The genus *Dermatocarpon* (Verrucariales, lichenized Ascomycotina) in the Nordic countries. *Nordic Journal of Botany* **20**(5): 605–639.
- Henry, B. (1975) *British Botanical and Horticultural Literature Before 1800. Comprising a History and Bibliography of Botanical and Horticultural Books Printed in England, Scotland and Ireland From the Earliest Times until 1800*. 3 vols. London: Oxford University Press.
- Hoffmann, G. F. (1784) *Enumeratio Lichenum Iconibus et Descriptionibus Illustrata. Fascic. I Lepra, Verrucaria, Tubercularia, Scutellaria*. Erlangae: Wolfgangi Waltheri.
- Hooker, W. J. (1821) *Flora Scotica; or a Description of Scottish Plants, Arranged Both According to the Artificial and Natural Methods*. Edinburgh: Archibald Constable & Co.
- Hudson, W. (1762) *Flora Anglica, Exhibens Plantas per Regnum Angliae Sponte Crescentes, Distributes Secundum Systema Sexuale: cum Differentiis Specierum, Synonymis Auctorum, Nominibus Incolarum, Solo Locorum, Tempore Florendi, Officinalibus Pharmacopoeorum*. London: Impensis Auctoris.

- Hudson, W. (1778) *Flora Anglica*. Ed. 2. Vol. 2. London: privately published.
- Hughes, P. (1975) Paul Sandby's tour of Wales with Joseph Banks. *The Burlington Magazine* **117** (No. 868): 452–457.
- Joppien, R. (1994) Sir Joseph Banks and the world of art in Great Britain. In *Sir Joseph Banks: a Global Perspective* (R. E. R. Banks, B. Elliott, J. G. Hawkes, D. King-Hele & G. Ll. Lucas, eds): 87–103; Kew: Royal Botanic Gardens.
- Jørgensen, P. M. (1978) The lichen family *Pannariaceae* in Europe. *Opera Botanica* **45**: 1–123.
- Jørgensen, P. M. (2007) *Lichinaceae*. *Nordic Lichen Flora* **3**: 46–76; 144.
- Jørgensen, P. M. (2012) New names in Gunnerus's *Flora Norvegica*, and their typification. *Taxon* **61** (5): 1088–1095.
- Jørgensen, P. M. & James, P. W. (1990) Studies in the lichen family *Pannariaceae* IV. The genus *Degeelia*. *Bibliotheca Lichenologica* **38**: 253–276.
- Jørgensen, P. M., James, P. W. & Jarvis, C. E. (1994) Linnaean lichen names and their typification. *Botanical Journal of the Linnean Society* **115**: 261–405.
- Kärnefelt, I. (1986) The genera *Bryocaulon*, *Coelocaulon* and *Cornicularia* and formerly associated taxa. *Opera Botanica* **86**: 1–90.
- Laundon, J. R. (1976) Lichens new to the British Flora: 5. *Lichenologist* **8**: 139–150.
- Laundon, J. R. (1984) The typification of Withering's neglected lichens. *Lichenologist* **16**: 211–239.
- Laundon, J. R. & Waterfield, A. (2007) William Borrer's lichens in the *Supplement to the English Botany* 1829–1866. *Botanical Journal of the Linnean Society* **154**: 381–392.
- Leighton, W. A. (1879) *The Lichen-Flora of Great Britain, Ireland, and the Channel Islands*, 3rd ed. Shrewsbury: printed for the author.
- Lightfoot, J. (1777) *Flora Scotica: or, a Systematic Arrangement, in the Linnaean Method, of the Native Plants of Scotland and the Hebrides*. 2 vols. London: B. White.
- Linnaeus, C. (1737) *Flora Lapponica*. Amsterdam: Apud Salomonem Schouten.
- Linnaeus, C. (1753) *Species Plantarum*. Vol. 2. Stockholm: Laurent Salvii.
- Linnaeus, C. (1771) *Mantissa Plantarum Altera*. Stockholm: Laurent Salvii.
- Linnaeus, C. (1774) *Systema Vegetabilium*. Ed. 13. Göttingen & Gotha: Io. Christ. Dieterich.
- Loeselius, J. (1703) *Flora Prussica Sive Plantarum in Regno Prussiae Sponte Nascentes*. Königsberg: Georg.
- Lysaght, A. M. (1971) *Joseph Banks in Newfoundland and Labrador, 1766. His Diary, Manuscripts and Collections*. London: Faber and Faber.
- Lysaght, A. M. & Cannon, J. F. M. (1973) Sir Joseph Banks's British herbarium. *BSBI News* **2**(1): 15–16.
- Marsden, J. (2001) Society News [unveiling of portrait of John Lightfoot]. *The Linnean* **17**(4): 2–3.
- Micheli, P. A. (1729) *Nova Plantarum Genera Iuxta Tournefortii Methodum Disposita*. Florence: Bernardi Paperinii.
- Morison, R. (1699) *Plantarum Historiae Universalis Oxoniensis. Pars Tertia*. Oxford: Sheldonian Theatre.
- Oeder, G. C. (1762) [1761'] *Icones Plantarum Sponte Nascentium in Regnis Daniae et Norvegiae . . . Florae Danicae Nomine Inscriptum*. I. Copenhagen: Typis Claudii Philiberti.
- Pennant, T. (1771) *A Tour in Scotland MDCCLXIX*. Chester: John Monk.
- Pennant, T. (1789) Some account of the author of this work. In *Flora Scotica*, ed 2, Vol. 1 v–xii (J. Lightfoot, ed.): v–xii. London: R. Faulder.
- Petiver, J. (1702–1709) *Gazophylacii Naturae et Artis Decades*. London.
- Price, J. H. (1968) Bibliographic notes on works concerning the algae II. The *Flora Scotica* of John Lightfoot (1777, 1789). *Journal of the Society for the Bibliography of Natural History* **5**: 57–67.
- Ray, J. (1724) *Synopsis Methodica Stirpium Britannicarum*, ed. 3. London: Innys.
- Riddlesdell, H. J. (1905) Lightfoot's visit to Wales in 1773. *Journal of Botany* **43**: 290–307.
- Scopoli, J. A. (1772) *Flora Carniolica*, 2nd ed. Vol. 2. Vienna: J. P. Krauss.
- Smith, C. W., Aptroot, A., Coppins, B. J., Fletcher, A., Gilbert, O. L., James, P. W. & Wolseley, P. A. (2009) *The Lichens of Great Britain and Ireland*. London: British Lichen Society.
- Smith, E. (1911) *The Life of Sir Joseph Banks, President of the Royal Society With Some Notices of his Friends and Contemporaries*. London: John Lane, The Bodley Head.
- Swartz, O. P. (1781) *Methodus Muscorum Illustrata*. Upsaliae: J. Edman.
- Swartz, O. P. (1784) Musci in Suecica nunc primum reperti ac descripti. *Nova acta Regiae Societatis Scientiarum Upsaliensis* **4**: 239–251.
- Timdal, E. (1991) A monograph of the genus *Toninia* (*Lecideaceae*, Ascomycetes). *Opera Botanica* **110**: 1–137.
- Tournefort, J. P. de (1700) *Institutiones Rei Herbariae*. Paris: Typographia Regia.
- Vaillant, S. (1727) *Botanicon Parisiense ou Denombrement par Ordre Alphabetique des Plantes qui se Trouvent aux Environs de Paris*. Leiden & Amsterdam: J. & H. Verbeek.
- Wating, R. & Seaward, M. R. D. (1981) James Bolton: mycological pioneer. *Archives of Natural History* **10** (1): 89–110.
- Withering, W. (1776) *A Botanical Arrangement of All the Vegetables Naturally Growing in Great Britain*. 2 vols. London: Cadell.
- Withering, W. (1796) *An Arrangement of British Plants; According to the Latest Improvements of the Linnaean System. To Which is Prefixed, an Easy Introduction to the Study of Botany*. 3rd ed. Vol. I: 369–372; Vol. IV: 1–77. Birmingham: M. Swinney.
- Woods, R. G. & Coppins, B. J. (2012) *A Conservation Evaluation of British Lichens and Lichenicolous Fungi*. Species status 13. Peterborough: Joint Nature Conservation Committee.

**Appendix 1. Lichens discussed/
described by Lightfoot in *Flora Scotica***

Lightfoot followed Linnaeus (1753, 1774) in the arrangement of taxa, including lichens as the genera *Byssus*, *Fucus* and *Lichen*, in class Algae, and as the genus *Mucor* in class Fungi. His Scottish lichens/fungi are listed below in the order printed in *Flora Scotica* on pages 800–898; 964–966; 1003; 1005–1007; 1071–1072. Names introduced by Lightfoot are marked with an asterisk (*). Authorities for current lichen names follow Jørgensen *et al.* (1994) and Smith *et al.* (2009), except where otherwise stated.

Lichen scriptus = *Graphis scripta*

**L. scriptus* var. α *hebraicus* Lightf. [*Lichen hebraicus* (Lightf.) Hoffm. (Hoffmann 1784: 13) = ? *Graphis scripta*

**L. scriptus* var. β *pulicaris* Lightf. = *Hysterium pulicare* (Lightf.: Fr.) Pers.

L. geographicus = *Rhizocarpon geographicum*

L. atrovirens = *nom. rejic. prop.* (Jørgensen *et al.* 1994)

L. rugosus = *Ascodichaena rugosa* (Jørgensen *et al.* 1994)

L. pertusus. = *Pertusaria pertusa*

L. sanguinarius = *Mycoblastus sanguinarius*

L. calcareus = *Mycoblastus affinis*

L. fusco-ater = *Lecidea fuscoatra*

L. atro-albus = *nom. rejic. prop.* (Jørgensen *et al.* 1994)

**L. caeruleo-nigricans* Lightf. = *Fuscopannaria praetermissa* (Timdal 1991: 121)

L. vernalis = *Bacidia rubella*

L. rupicola = *Lecanora rupicola*

L. ventosus = *Ophioparma ventosa*

L. fagineus = *nom. rejic. prop.* (Jørgensen *et al.* 1994)

L. carpineus = *Lecanora carpinea*

L. corallinus = *Pertusaria corallina*

L. ericetorum & β = *Icmadophila ericetorum*

L. byssoides = *Baeomyces rufus*

**L. aurantiacus* Lightf. = *Caloplaca ferruginea* (Laundon 1976: 148).

L. candelarius α & β = *Xanthoria candelaria*

L. tartareus = *Ochrolechia tartarea*

L. pallescens and β = *Lecanora dispersa*

L. subfuscus = *Lecanora cf. horiza*

L. ater and β = *Tephromela atra*

L. parellus = *Ochrolechia parella*

L. centrifugus = *Arctoparmelia centrifuga*

**L. cartilagineus* Lightf. = *Squamarina cartilaginea* (Laundon 1984: 216)

L. saxatilis β = *Parmelia saxatilis*

L. omphalodes = *Parmelia omphalodes*

L. fahluensis = *Melanelia stygia*

L. olivaceus = *Xanthoparmelia pulla*

L. crispus = *Collema crispum*

L. cristatus = *Collema tenax*

L. parietinus = *Xanthoria parietina*

L. physodes = *Hypogymnia physodes*

L. stellaris β = *Physcia stellaris*

**L. pullus* Lightf. = *Anaptychia runcinata* (Laundon 1984: 225)

**L. plumbeus* Lightf. = *Degelia plumbea* (Jørgensen 1978: 54–55; Jørgensen & James 1990)

L. burgessii = *Leptogium burgessii*

L. ciliaris and β = *Anaptychia ciliaris* (Woods & Coppins 2012)

L. islandicus and β = *Cetraria islandica*

L. pulmonarius = *Lobaria pulmonaria*

L. furfuraceus = *Pseudevernia furfuracea*

L. farinaceus = *Ramalina farinacea*

L. calicaris = *Ramalina siliquosa*

L. fraxineus = *Ramalina fraxinea*

L. prunastri = *Evernia prunasri*

L. juniperinus = *Vulpicidia tubulosa*

L. caperatus = *Flavoparmelia caperata*

L. glaucus = *Platismatia glauca*

L. perlatus = *Parmotrema perlatus*

**L. vespertilio* Lightf. = *Collema nigrescens* (Withering 1796; Acharius 1799, 1803)

L. fascicularis = *Collema fasciculare*

L. tremelloides and β , γ , δ = *Leptogium lichenoides*

L. resupinatus = *Nephroma resupinatum*

L. venosus = *Peltigera venosa*

L. caninus = *Peltigera praetextata*

L. caninus var. β *rufescens* = *Peltigera rufescens*

L. caninus var. γ *polydactylon* = *Peltigera polydactylon*

L. aphthosus = *Peltigera aphthosa*

L. sylvaticus = *Sticta sylvatica*

L. horizontalis = *Peltigera horizontalis*

L. scrobiculatis = *Lobarina scrobiculata*

**L. laete-virens* Lightf. = *Lobaria virens* (Laundon 1984)

**L. glomeliferus* Lightf. = *Lobaria amplissima* (Leighton 1879)

L. saccatus = *Solorina saccata*
L. croceus = *Solorina crocea*
L. miniatus = *Dermatocarpon miniatum*
 **L. miniatus* var. β *complicatus* Lightf. = *D. miniatum* var. *complicatum* (Heiðmarsson 2000: 627).
L. pustulatus = *Lasallia pustulata*
 **L. crinitus* Lightf. = *Umbilicaria cylindrica*
L. deustus = *Umbilicaria deusta*
 **L. torrefactus* Lightf. = *Umbilicaria torrefacta*
L. polyphyllus = *Umbilicaria polyphylla*
L. polyrhizus = *Umbilicaria polyrhiza*
L. cocciferus = *Cladonia coccifera*
L. cornucopioides = *Cladonia cornuta*
L. pyxidatus = *Cladonia pyxidata*
L. fimbriatus = *Cladonia fimbriata*
 **L. tubiformis* Lightf. = *Cladonia macilenta*
 **L. alpicornis* Lightf. = *Cladonia foliacea*
L. gracilis = *Cladonia gracilis*
L. digitatus = *Cladonia floerkeana*
L. ventricosus = *Cladonia macilenta*
L. cornutus and β , γ , δ , ϵ = *Cladonia cornuta*
L. deformis = *Cladonia deformis* (Woods & Coppins 2012)
L. rangiferinus = *Cladonia rangiferina*
L. rangiferinus var. *alpestris* = *Cladonia stellaris*
L. uncialis and β = *Cladonia amaurocraea*
L. subulatus = *Cladonia subulata*
L. furcatus and β = *Cladonia furcata*
L. spinosus = *Cladonia furcata*
 **L. hispidus* Lightf. = *Cetraria muricata* (Kärnefelt 1986: 68)
 **L. corniculatus* Lightf. = *Cornicularia nor-moerica* (Kärnefelt 1986: 79; Jørgensen 2012)
L. paschalis = *Stereocaulon paschale*
L. globiferus = *Sphaerophorus globosus*

L. fragilis = *Sphaerophorus fragilis*
L. plicatus = *Usnea ceratina*
L. barbatus = *Usnea barbata*
L. jubatus = *Bryoria fuscescens* (Hawksworth 1972)
L. chalybeiformis = *Bryoria chalybeiformis*
L. lanatus = *Ephebe lanata*
L. pubescens = *Pseudephebe pubescens*
 **L. exilis* Lightf. = *Pseudephebe pubescens* (Acharius 1799; Davies 1811; Leighton 1879)
L. hirtus = *Usnea cornuta*
L. vulpinus = ? *Alectoria ochroleuca*
L. floridus = *Usnea florida*

BYSSUS

B. nigra = *Cystocoleus ebeneus*
B. candelaris = *Chrysothrix candelaris*
B. botryoides = *Lichenomphalia umbellifera*
B. incana = *Lepraria incana*
B. lactea = *nom. rejic. prop.* (Jørgensen *et al.* 1994)

FUCUS

**L. pygmaeus* Lightf. = *Lichina pygmaea* [lectotypified on a specimen collected by Brian Coppins (Jørgensen 2007: 144)]

MUCOR

M. sphaerocephalus = *nom. rejic. prop.* (Jørgensen *et al.* 1994)
M. lichenoides = *Calicium salicinum*