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EDINBURGH'S INDIAN BOTANICAL CONNECTIONS AND COLLECTIONS

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ABSTRACT

A survey is given of the many botanical links between Edinburgh and India from the mid 18th century to the start of the 20th century. Attention is drawn to the important contributions made to various aspects of Indian botany by Edinburgh-trained surgeons, botanists, gardeners; also administrators and military men; there are brief life-histories of a selection of those with Edinburgh connections of one kind or another. The importance of the rich Indian collections at the Royal Botanic Garden, Edinburgh is stressed: both herbarium and library-archival resources. The second part of the paper gives an alphabetical list of all the collectors of Indian specimens, phanerogams and cryptogams, who are known to be represented in the Edinburgh herbarium.

INTRODUCTION

It is appropriate while celebrating the 200th anniversary of the founding of the Calcutta Botanic Garden to remember the major contributions made to Indian botany by Scotsmen, especially from Edinburgh, from the mid 1700s up till about the start of the present century and at the same time to draw attention to the richness of the Indian herbarium and library resources at the Royal Botanic Garden, Edinburgh. While not claiming that these resources are the equal of Kew, the British Museum (Natural History) or the India Office library and records, Edinburgh is a major centre for anyone tracing the history and development of many different facets of Indian botany; and for anyone working on the taxonomy of Indian plants.

One of the main reasons for the importance of Edinburgh's Indian collections stems from the age-old importance of Edinburgh University and the high status of its medical school. The teaching of medicine and botany was, for about two centuries, almost completely inter-mixed. Many of Edinburgh's graduates went abroad after their studies were completed and many went to India. Although their lectures would not have prepared them for an understanding of totally different plants and vegetation, in many instances the influence of their teachers must have played a significant part in their developing a curiosity about the plants they met with. In the period covered in this paper there are three Edinburgh Professors of Botany to remember as particularly influential teachers : John Hope (Professor and Regius Keeper from 1764-1786), Robert Graham (1820-1845) and John Hutton Balfour (1845-1879). All three must have played a very significant part in developing in their students a curiosity about all aspects of natural history. Often this curiosity resulted in their making pioneer observations on and collections of the plant life of India, native and cultivated. Very large numbers of new species were described by such Edinburgh trained men as Roxburgh, Buchanan-Hamilton and Wight.

Numerous beautiful illustrations were prepared under their guidance by talented Indian artists and a very sound foundation was laid in the early-mid-1800s towards a good understanding of the flora of India.

These early investigators of Indian botany were men of wide interests. Roxburgh wrote zoological papers, Falconer was a geologist and palaeontologist, Elliot wrote about botany, zoology, archaeology, coins and languages. Some of them made huge collections of plants : Falconer had 70 crates of dried plants when they were returned to India House in London; Watt brought back to Edinburgh 37 large herbarium cabinets of Indian plants. Generally, these collections must have been made under very difficult if not dangerous conditions : travel was slow and ill-health a continual hazard for Europeans. Many died young.

Often the plant collections were the private property of their makers and they dispersed them at their will, often quite or very widely. The East India Company apparently took the view that plant collections were a means to an end, not an important end in themselves. And sometimes, as was the case with the huge collections of Falconer, they were stored in bad conditions in London, serious damage from damp and insects resulted and a high percentage of the collections was destroyed.

During the early years of taxonomic investigation of the Indian flora, collections were often sent back to Sir Joseph Banks in London. later , as Joseph Dalton Hooker started working towards his classic *Flora of British India* (1872-97), Kew became the main centre for research and huge Indian collections were accumulated. Although London was where so much of the original taxonomic research was carried out, a considerable part of one of the early Floras, Wight's 1834 *Prodromus Florae Peninsul. Indiae* was written up in Edinburgh.

Taxonomic botany is only one part of the subject and the applied aspects of economic botany, natural resources, forestry and medicinal plants were always on the minds of the early workers in India. Gardens were created not only for aesthetics but also for developing potentially useful economic plants. Often the gardeners in charge were Scots; such as W.G. McIvor whose name is always associated with the introduction and cultivation of *Cinchona*, and John Scott who, in association with Thomas Anderson, took an active part in growing economic plants at the Calcutta garden. Another Scot, John Fleming, wrote in 1810 one of the earliest catalogues of Indian medicinal plants. His work was in due course followed by others, such as that of Birdwood, culminating in the publication of Watt's massive *Dictionary of Indian Economic plants*. In Indian forestry too there were many Scots who played a significant role and several were conservators of forests in Bombay, Madras and the Punjab : such as H.F.C. Cleghorn, N.A. Dalzell, A. Gibson and J.L. Stewart.

In remembering those Edinburgh medical and military men, foresters, administrators, gardeners and botanists, it is also important to stress the important Indian role of the Botanical Society of Edinburgh. Founded in 1836 by Robert Graham, it rapidly became an international society with, in the middle of the last century, a very strong Indian side : within 10 years of its foundation local secretaries had been established in Bombay, Madras, Mysore and Saharanpur. The Proceedings and Transactions of the Society published numerous papers on the botany, vegetation, economic plants and forestry of India. In, for example, the brief period between 1863 and 1866, no fewer than 20 papers of Indian content were published, all by authorities on their subject. This Edinburgh journal is a very

important imformation source for any one interested in tracing the growth and development of different facets of Indian botany.

After this short summary of the general contributions made by Edinburgh-linked workers in India, the more particular connections with the Calcutta Botanic Garden can be very briefly recorded. No fewer than eight of the Superintendents of the Garden between 1793 and 1927 had Edinburgh connections : Roxburgh, Buchanan-Hamilton, Fleming, Falconer, Anderson, Cunningham, Wright Smith and Cowan.

SOME IMPORTANT CONTRIBUTORS TO INDIAN BOTANY

These are arranged in chronological sequence. For each, a very brief life history is given and followed by a selection of their most important publications; the location of herbarium specimens and archival material is indicated. Useful biographical references are followed, where relevant, by plant names, generic or specific which are commemorative of the subject. Burkill (1965) Desmond (1977, 1982), Stewart (1982) and Archer (1962) are very useful basic information sources for most of those dealt with in this section; Stafleu & Cowan (1976 onwards) is the essential source for information about publications and the location of specimens.

Patrick Russell MD, FRS (1727-1805).

Born Edinburgh. Studied Edinburgh University. In 1750 joined his half-brother (Alexander Russell) in Aleppo; 1781 in India; 1785-1789 succeeded Koenig (a pupil of Linnaeus), as naturalist to the East India Company in the Carnatic. Wrote in 1795 the Preface to Roxburgh's *Plants of the coast of Coromandel.* Died in London.

Published some important zoological works, especially on fish and reptiles.

Herbarium specimens at E, BM, K; drawings at BM.

Dictionary of national biography 49 : 469-470. 1897; various references in Archer (1962).

[Two other Scottish botanists working in the Madras-Tranquebar area about the same time as Russell were **James Anderson** (1738-1809), MD Edinburgh, (Physician-General of the Madras Medical Board till his death — reference in *Ann. Sci. (London)* 29 : 412-413. (1972) and his nephew **Andrew Berrie** (1764-1833), MD Edinburgh 1784, (first secretary Madras Medical Board). Both laid out gardens in the Madras area.].

John Fleming MD, FRS, FLS (1747-1829).

Early life not known. A matriculated student at Edinburgh University 1764-1767 who attended Prof. John Hope's Materia Medica Classes at Edinburgh University in 1766; there is no record of his having graduated MD at Edinburgh. Joined the Indian Medical Service, Bengal, 1768. During one of W. Roxburgh's leaves of absence from Calcutta was in charge of the Calcutta Botanic Garden. Died in London.

His collections of paintings of Indian plants were probably made by Roxburgh's artists;13 folio volumes were purchased by BM (London) in 1882.

Fleming, J. *A catalogue of Indian medicinal plants and drugs, with their names in the Hindustani and Sanscrit languages.* Calcutta 1810.

No known herbarium specimens?; drawings BM.

Journ. Bot. 1916 : 301-303. Various references in Archer (1962).

Flemingia Roxb. nom. cons. (Leguminosae).

William Roxburgh MD, FLS (1751-1815).

Born Craigie, Ayrshire, Scotland. A pupil of Prof. John Hope (first Regius Keeper, Royal Botanic Garden, Edinburgh); graduated MD Edinburgh University. Joined the Medical Service of the East India Company;

in Madras 1776-80. In charge of the Botanic Garden at Samalkot (Madras) 1781-93, which was mainly an experimental one for the cultivation of pepper and other potentially important economic plants. From 1793-1814, Superintendent of the Calcutta Botanic Garden.

During these 20 years he made enormous contributions to the knowledge of Indian plants by his major descriptive publications and the beautiful paintings of native plants prepared under his supervision by a team of expert Indian artists. He followed the methods adopted by Koenig and Banks whereby the drawings/paintings and the descriptions (he described c. 2600 species) were prepared from the same plant; over 2500 paintings, of folio size, were completed. He also wrote some zoological papers including one describing a new species of dolphin from the Ganges. Died in Edinburgh 15 February 1815.

Roxburgh's *Flora Indica* and *Hortus Bengalensis,* together with the illustrations, were the basic works on Indian botany from which all subsequent taxonomic research developed. And until J.D. Hooker's *Flora of British India* was published, *Flora Indica* (published after his death) was the only single work from which an overall knowledge of Indian plants could be acquired.

Roxburgh, W. *Plants of the coast of Coromandel selected from drawings and descriptions presented ..... by William Roxburgh.* 3 vols. East India Company, London 1795-1820 [superintended by Joseph Banks].

Roxburgh, W. *Hortus Bengalensis : or a catalogue of the plants growing in the Hon. East India Company's Botanic Garden at Calcutta.* Serampore : Mission Press, 1814.

Roxburgh, W. *Flora Indica : or descriptions of Indian plants.* Edited by William Carey, to which are added descriptions of plants more recently discovered by Nathaniel Wallich, Serampore : 2 vols. Mission Press, 1820-24.

Herbarium specimens at E, BM, K (main collection, much in the Wallich herbarium), LIV, OXF : see Stafleu & Cowan 4 : 954. 1983 for other institutes –16 in all; drawings at K, BM, CAL; letters at BM; at E is a 'Catalogue of plants .... chiefly those growing near Madras, collected by W. Roxburgh and by him presented to the Royal Society of Edinburgh' Folio. Manuscript. 1792.

Sealy, J.R. William Roxburgh's collections of paintings of Indian plants. *Endeavour* 34 (122) : 84-89. 1975.

Nayar, M.P. & Das, A.R. Glimpse of William Roxburgh through his unpublished letters and his interest in Indian economic Botany. *Journ. Econ. Tax. Bot.* 5 : 1159-1167. 1984.

[numerous other biographical references—see Stafleu & Cowan vol. 4].

Roxburghia W. Jones ex Roxb. (Roxburghiaceae).

Francis Buchanan-Hamilton MD, FRS, FLS, FRSE (1762-1829). [originally Francis Buchanan but later, on inheriting the family estate, adopted the name Hamilton].

Born near Callander, Scotland. Educated first at Glasgow University then as a student of Prof. John Hope at Edinburgh University where he took his MD in 1783. In 1794 joined the Bengal branch of the East India Company as surgeon. After accompanying a mission to Avu, Pegu and the Andaman islands, he was stationed near Lakkimpur [Lakhimpur], east part of the Brahmaputra. In 1800 he was sent by the Governor General of India, Lord Wellesley, to report on agriculture, customs, antiquities etc. in the countries of Mysore, Canara and Malabar. A voluminous report followed. After his travels, collecting all the while, in south India, he also travelled in Nepal. For a short period, 1814-15, he was Superin-

tendent of the Calcutta Botanic Garden, being followed by Nathaniel Wallich. He retired to Scotland in 1815 to the family house of Leny, Callander.

In a letter to Sir Joseph Banks in 1797, W. Roxburgh says ..... "he is a worthy valuable man and no doubt the best botanist in India"

Buchanan, Francis. *A journey from Madras through the countries of Mysore, Canara and Malabar.* 3 vols. London 1807.

Hamilton, Francis. A catalogue, according to the Linnaean method, of dried plants presented to the Museum of the East India Company. [a manuscript list of 2599 numbers].

Numerous botanical, zoological, geographical, historical publications and reports.

Herbarium specimens at E, BM, K, OXF and many other institutes; mss at BM; drawings at India Office library; letters.

Ann. Bot. Gard. Calcutta 10, 2 : i-lxxv. 1905 (a very full account of his life; lists all his publications). Many references in Archer (1962) and elsewhere.

Buchanania K.P.J. Sprengel (Anacardiaceae).

Christina Ramsay, Countess of Dalhousie (1786-1839).

Married in 1805 the 9th Earl of Dalhousie and accompanied him when commander-in-chief in the East Indies, 1829-32. Collected over 600 species in the Simla area, some of the early collections from there. (see also George Govan). In 1837-1838 presented to the Botanical Society of Edinburgh the whole of her East Indian herbarium.

Mother of the 10th Earl and first Marquis of Dalhousie (1812-1860) governor-general of India (1848-1856).

Herbarium at E (labelled as CBD— the B presumably her maiden name Brown), K, letters at K.

Dalhousiea Wallich ex Bentham (Leguminosae); *Rhododendron dalhousiae* Hook. f.

George Govan MD (1787-1865).

At Edinburgh University taking his MD in 1808 collected in the Simla area in 1817. The first Superintendent of the Saharanpur Botanic Garden, from 1820-1823; Royle succeeded him. Returned to Scotland in 1823 and died at Whinfield, Kinross in 1865.

Govan, G. Natural History of the Himalayan mountains. *Edinb. Journ. Science* 2 : 17-38. 1825.

Specimens not traced.

Nepeta govaniana (Wall.) Benth.

Robert Wight MD, FRS, FLS (1796-1872).

Born Milton, Duncrahill, Pencaitland near Edinburgh. At Edinburgh High School with G.A. Walker Arnott. Studied under Prof. Rutherford at Edinburgh University, MD 1818. Joined the Medical Service of the East India Company at Madras the following year. By 1826 had amassed a large herbarium which was sent to William Jackson Hooker in Glasgow; 1826-28 in charge of the Botanic Garden at Madras. Made extensive collections whilst garrison surgeon at Negapatam [Nagappattinam]. On sick leave in UK in 1831 and worked mainly in Edinburgh with Walker Arnott on *Prodr. Florae Penins. Indiae.* Returned to India in 1834 at Bellary [Karnataka] and continued to collect in different parts of mainly south India— "my collections are now very large ..... they will not fall short of 2000 species". In 1836 transferred to the EIC Revenue Department dealing with cultivation of economic plants, especially cotton and tobacco. At Coimbatore, 1842-50, in charge of a cotton experimental garden. Left India 1853. Died Berkshire, England.

A major figure in Indian botanical history with many important publications, especially dealing with southern India.

Wight, R. & Arnott, G.A.W. *Prodromus*

florae peninsulae Indiae Orientalis .... London. 1834. [one copy at E with numerous annotations by H.F.C. Cleghorn].

Wight, R. *Icones plantarum Indiae Orientalis* .... 6 vols + index. Madras. 1838-1853.

Wight, R. *Spicelegium neilgherrense, or a selection of Neilgherry Plants.* 2 vols. Madras. 1846-51.

Many other botanical publications.

Herbarium specimens at E, E-GL, [numerous types] K, OXF etc; letters, drawings, manuscripts at K, also E (including drawings; information on his material previously housed in the Glasgow University herbarium).

Trans. Bot. Soc. Edinb. 11 : 363-388. 1873; *Taxon* 30 : 784-793. 1970 [with full list of publications] (many other reference sources).

Wightia Wallich (Scrophulariaceae); *Rhododendron wightii* Hook. f.

George Arnold [Arnott]Walker-Arnott MA, LLD, FLS (1799-1868).

Lived at Arlary near Kinross, Scotland; many cultivated specimens annotated 'Hort. Arlary'.

Born Edinburgh. At School with Robert Wight. MA, Edinburgh University, then took a law degree,but gave it up for his botanical interests. Worked in herbaria at Paris and Montpellier. In 1832 worked in Edinburgh with Wight on *Prod. Florae Penins. Indiae.* In 1845 succeeded William and Jackson Hooker and John Hutton Balfour as Professor of Botany at Glasgow University. Accumulated a large worldwide herbarium during almost 50 years; exchanging with numerous famous botanists of his time. Died in Glasgow.

His herbarium and library, on Hooker's recommendation, was given to Glasgow University; the herbarium,on the transfer to Edinburgh of the 'foreign' Glasgow University herbarium (excluding cryptogams),came to E in 1966.

Wight, R. & Arnott, G.A.W. *Prodromus florae peninsulae Indiae Orientalis.* London. 1834.

Herbarium specimens at E, E-GL, K, OXF; many letters at E.

Trans. Bot. Soc. Edinb. 9 : 414-426. 1866. Includes a full list of publications.

Alexander Gibson MD, FLS(1800-1867).

Born Laurencekirk, Kincardine, Scotland. Studied at Edinburgh University and took his MD there. In 1825 went to India as an assistant surgeon with the East India Company and served for some time with the Indian Navy.In 1836 in the Deccan and Kandesh,where he started taking an interest in the flora. In 1838 appointed Superintendent of the Botanic Garden at Dapoli [near Pune] where he was involved in the introduction of potentially useful medicinal plants. His knowledge of the flora led in 1847 to his appointment as the first Conservator of Forests in the Presidency of Bombay; he occupied this post till his retirement in 1860. He died in Bombay in 1867 and was buried close to the forest garden at Hivare which he created for native and introduced species.

Gibson, A. *A handbook to the forests of the Bombay Presidency* no. 1 & 2. 114 pp. Bombay. 1857.

Herbarium specimens at K, CAL.

Dictionary of National Biography 21 : 272. 1890. *Indian Forester* 97 : 152-161. 1971 [includes an account of the Hivare garden].

Gibsonia Stocks (= Calligonum) (Polygonaceae).

John Ferguson Cathcart (1802-1851).

Born in Edinburgh. To Calcutta in 1822 with the Bengal Civil Service. A judge at Tirrhoot [Tirhut, Bihar] and studied the flora of the Darjeeling area. Superintended the drawings by local artists (at his own expense) of c. 700 folio coloured plates

of Himalayan plants. Died Lausanne, Switzerland.

Herbarium specimens reportedly at E,but none traced; drawings K.

Bot. Mag. t. 4596. 1851.

Cathcartia Hook. f. (sometimes included in *Meconopsis*) (Papaveraceae).

Sir Walter Elliot KCSI, LLD, FRS, FLS, (1803-1887).

Born Edinburgh. Educated at home near Hawick with tutors and at private schools. Joined the East India Company in 1821 at Madras and for the next 38 years occupied increasingly important administrative posts. In 1837 private secretary to his relative Lord Elphinstone,at that time Governor of Madras; from 1849 to 1854 he was Commissioner for the Northern Circars; and from 1854 till he retired in 1859 he was Senior Member of Council in Madras.

A distinguished administrator and a respected scholar in such varied fields as numismatics, ancient languages, agriculture, ethnology, archaeology, zoology and botany.

He retired to his family home, Wolfelee, near Hawick, Scotland and from 1863 till his death 24 years later he continued with his manifold interests. President of the Botanical Society of Edinburgh, 1869-70.

Elliot, W. *Flora Andhrica : a vernacular and botanical list of plants commonly met with in the Telugu districts of the Northern Circars.* Part. I. Madras, exhibition of 1859. 1859.

Herbarium specimens at E.

Dictionary of National Biography 17 : 262-264. 1889.

Trans. Bot. Soc. Edinburgh 17 : 342-345. 1889.

Sewell, R. *Sir Walter Elliot of Wolfelee. A sketch of his life and a few extracts* from *his notebooks.* Edinburgh, 1896.

Edward Madden FRSE, Lt. Col. (1805-1856).

Born in Ireland. From 1830-1850 served with the Bengal Artillery mainly in northern India. Despite his military duties, managed to collect herbarium material and especially seeds which were mainly sent to Glasnevin garden,Dublin. After his retirement in 1850 lived in Edinburgh and worked on the Indian collections in the herbarium. President of the Botanical Society of Edinburgh in 1855-56. Died in Edinburgh.

Herbarium specimens at E (few?), K, Glasnevin; lists of plants at E, correspondence at K.

Journ. Roy. Hort. Soc. 97 : 203-206. 1972.

Maddenia Hook. f. & Thoms. (Rosaceae); *Rhododendron maddenii* Hook. f.

Hugh Falconer MA, MD, FRS, FLS (1808-1865).

Born Forres, Scotland. Studied first at Aberdeen University then at Edinburgh University under Prof. Robert Graham, graduating MD in 1829. Before going to India as an assistant-surgeon with the Bengal branch of the East India Company, spent some time working with Nathaniel Wallich in London on his (N.W's) Indian herbarium, also studying geology and fossils. Arrived Calcutta 1830, subsequently to Meerut and Saharanpur where Royle was Superintendent of the Garden. In 1832 succeeded Royle at Saharanpur, at the same time as pursuing his botanical interests also published on geology and palaeontology. In 1834 involved in growth trials of tea. Travelled widely in Kashmir in 1837-38 sending plants to Saharanpur. In 1842 returned to UK on sick leave ["with 70 large chests of dried plants and 5 tons of fossil bones"].

In 1848 returned to Calcutta, succeeding Wallich, as Superintendent of the Garden and as Professor of Botany, Calcutta Medical College.

During the next few years advised the Indian government on many aspects of the economic plants of the country, including teak (in Burma) and *Cinchona*. He retired from the Indian Service in 1855 to the UK where he continued his life's interests especially palaeontology, on which he published extensively.

After his death, in London, a Falconer memorial fellowship was founded at Edinburgh University.

Hooker & Thomson while working on their *Flora Indica* said that Falconer's herbarium was the only major one they had been unable to consult and consequently they were unable to do him full justice for the many plants he had discovered. Hooker also noted that when the almost 70 crates of Falconer's dried plants were stored at India House, London, damp, insects and rats destroyed more than ¾ of the collection which had to be thrown away.

A list of Falconer's papers is in Royal Soc. Catalogue of Scientific papers vol. 2. 1868.

Herbarium specimens at E, K (mostly), DD, CAL—and many other institutes; mss, drawings at K.

Dictionary of National Biography 18 : 158-161. 1889.

Hooker, J.D. *Catalogue of the plants distributed at the Royal Botanic Gardens, Kew (under the sanction of the Secretary of State for India) from the herbaria of Griffith, Falconer and Helfer.* London 1865.

Murchison, C. Biographical sketch. In Falconer, H., *Palaeontological Memoirs and Notes* vol. 1 : xxiii-liii. London 1868 [with portrait; on pp. lx and lvi of the same reference is a list of Falconer's botanical memoirs and reports].

Falconeria Royle [1839]—Euphorbiaceae; *Falconeria* J.D. Hooker [1853]— Scrophulariaceae. *Rhododendron falconeri* Hook. f.; *Dendrobium falconeri* Hook.

William Jameson CIE, MD, FRSE, FLS, Deputy Surgeon-General (1815-1882).

Born at Leith, near Edinburgh. Studied at Edinburgh University under Prof. Robert Graham and graduated MD in 1838. Appointed to the Bengal Medical Service at Calcutta and for a short time Curator of the Museum of the Asiatic Society. After serving at Cawnpore [Kanpur], Ambalia [Ambala] (1841) and travelling to Iskardo [Skardu] and Gilgit, he was appointed to succeed Dr Hugh Falconer in 1842 as Superintendent of the Saharanpur Botanic Garden. With the support of the Governor-General Lord Dalhousie, he advocated and succeeded in introducing the cultivation of tea in various parts of India, such as Dehra Dun, Mussoorie, Garhwal, Kumaun. Largely because of his energetic devotion and beliefs was the tea industry established in India.

Retired in 1875 to a small tea plantation at Dehra Dun where he later died.

Many important papers and reports on the cultivation of tea and tea plantations.

Herbarium specimens at E (from c. 1841-60), K; some letters at E.

Trans. Bot. Soc. Edinb. 14 : 288-295. 1883 [includes a list of his papers and official reports].

Nicol Alexander Dalzell MA, FRSE (1817-1878).

Born Edinburgh. MA of Edinburgh University 1837; one of the earliest members of the Botanical Society of Edinburgh (founded 1836). In 1841 in Bombay as an Assistant Commissioner of customs and developing his botanical interests. Forest ranger in Sind and later, on the retirement of Dr. Gibson, appointed Conservator of Forests, Bombay. His 'Contributions to the botany of western India' published through William Jackson Hooker from 1850 onwards, were followed in 1861 by his Bombay Flora. He left India in 1870 and died in Edinburgh.

He described more than 200 species. J.D. Hooker said of him that "his knowledge and the fidelity of his descriptions were so remarkable that he was selected as one of the intended authors of *Flora,British India*"

Herbarium specimens at E, K, CAL, DD, W(?).

Dalzell, N.A. *The Bombay flora:* or, short descriptions of all the indigenous plants hitherto discovered in or near the Bombay presidency .... 1861. Co-author Alexander Gibson [who in fact did not contribute to the work but paid for its publication].

Dalzell, N.A. *Catalogue of the indigenous flowering plants of the Bombay Presidency-forming an index to the Bombay flora.* Bombay 1858.

[a series of printed testimonials and a memorial is in the Edinburgh library].

Dictionary of National Biography 13 : 448. 1888.

Dalzellia Wight (Podostemaceae).

Hugh Francis Clarke Cleghorn MD, LLD, FRSE, FLS (1820-1895).

Born in Madras (where his father held high office in the Supreme Court), spent his childhood in Fife, Scotland. MD Edinburgh 1841 then joined the Medical Service of the East India Company in Madras where he travelled and collected widely, getting to know the native and cultivated flora with advice from Robert Wight. In 1852 appointed to the chair of Botany and Materia Medica, Madras Medical College. In 1856 Conservator of Forests for Madras Presidency. In 1861 Joint Conservator of Forests for India with Sir Dietrich Brandis; then from 1867 till his retirement in 1869 Conservator of Forests for India. President of the Botanical Society of Edinburgh 1868-1869. Candidate for Chair of Botany, Glasgow University 1868. Spent the last years of his life at Stravithie, Fife.

An important figure in Indian botany for his contributions to economic botany, land usage, conservation and forestry.

Cleghorn, H.F.C. *General index to Robert Wight, Icones Plantarum Indiae Orientalis.* Madras, 1856.

Cleghorn, H.F.C. *The forests and gardens of South India.* London. 1861.

Author of numerous papers, many in *Trans. Bot. Soc. Edinburgh.*

Herbarium specimens at E; the Cleghorn memorial library at E; numerous letters and other archival material at E, also at K.

Trans. Bot. Soc. Edinb. 20 : 439-448. 1895 [includes a list of his publications].

Cleghornia R. Wight (Apocynaceae).

William Graham McIvor (?-1876).

Born Dollar, Scotland. Horticultural training at the Royal Botanic Garden, Edinburgh, Later at Kew. Selected by Sir William J. Hooker and Dr J.F. Royle to take charge of a Botanic Garden on the Nilgiri Hills, Madras, in 1848. Responsible for the successful growing of *Cinchona* plants in India brought from Peru

McIvor, W.G. *Notes on the propagation and cultivation of the medicinal Cinchonas or Peruvian BarkTrees.* Madras. 1867. 33pp. *Trans. Bot. Soc. Edinb.* 13 : 11-12. 1876.

Sir George Christopher Molesworth Birdwood MD (1832-1917).

Born in Bombay. At school Dollar Academy then Edinburgh University and a pupil of Prof. John Hutton Balfour—"it is no doubt due in large measure to my training under Prof. Balfour that botany has always been a favourite study of mine"; graduated MD 1854. Appointed in 1854 to the Bombay Medical Staff; here he was Secretary/Curator of the Government Central Museum, Professor of Materia Medica and Secretary to the Agricultural/Horticultural Society of W India; one of the founders of the Victoria and Albert Museum in Bombay. Published on the history and taxonomy of

frankincense (*Boswellia*) as part of his wide interest in economic plants.

He returned to the UK in 1868 and from 1871 till he retired in 1902 occupied a senior administrative post in the India Office. London-Assistant Reporter on the Products of India and Curator of the India Museum 1874; Scientific Assistant, India Office 1878-1902.

Innumerable publications, articles and reports; an authority on Indian art, philology and etymology; an accomplished Sanskrit scholar.

Birdwood, G.C.M. *Catalogue of the Economic plants of Bombay* 1862.

Herbarium specimens at K; some letters and drawings at E.

Dictionary of National Biography 1912-21 : 46-47.

Many references in Desmond (1982) [also includes a photograph of him at work].

Thomas Anderson MD, FLS (1832-1870).

Born Edinburgh. Studied at Edinburgh University under Prof. John Hutton Balfour and graduated MD in 1853. Encouraged by Dr. H.F.C. Cleghorn in his interest in Indian plants. Joined the Bengal Medical Service in 1854 at Calcutta, and for the next four years combined his medical and surgical work with botanical investigations; variously at Lucknow, the Himalayas, Delhi and Calcutta. After a spell of sick leave in the UK returned to Calcutta to take temporary charge, in Dr. T. Thomson's absence, of the Calcutta Botanic Garden. On Dr. Thomson's retiral he was appointed Director in 1861. He took a special interest in developing the economic botanical resources of India; especially *Cinchona* and Ipecacuanha. He brought back to Calcutta from Java several hundred plants of different species of *Cinchona* including *C. calisaya*. He also from 1864-66 Superintended the Forestry Department in Bengal.

He died in Edinburgh at the age of 38 years.

Thomas Anderson's brother, John (1833 1900) was also in Calcutta as Curator of the geological and zoological collections of the Asiatic Society. Both brothers collected plants.

Anderson. T. *Catalogue of plants cultivated in the Royal Botanical Gardens* 1861-64. Calcutta 1865.

[Many other botanical papers, especially on Acanthaceae, and reports].

Herbarium specimens at E, BM (NH), K, CAL, L; voluminous correspondence at E.

Trans. Bot. Soc. Edinburgh 11 : 41-45. 1870.

Strobilanthes andersonii Bedd. (Acanthaceae).

John Lindsay Stewart MD, FRSE, FLS (1832-1873).

Born Fettercairn, Aberdeenshire, Scotland. A pupil at Glasgow University of Prof. G.A. Walker Arnott; then took his MD degree at Edinburgh University. Joined the Indian Medical Service as assistant-surgeon in Bengal in 1856. From 1860-61 acted as Superintendent of the Saharanpur Botanic Garden, for Dr. W. Jameson, and was also in charge of the tea plantations in the North West. Subsequently Civil Surgeon at Rohilkhand [Madhya Pradesh] and in 1864 appointed as Conservator, of forests Punjab, of the five rivers area (Pentapotamica). Travelled and collected extensively during his time in India especially in the North West (including what are now parts of Pakistan, e.g. Waziristan). In 1869 returned to the UK for leave and to work up his collections for a Forest Flora of N & C India but never completed; finished and published, through Dietrich Brandis' efforts, shortly after his death at Lahore, at the age of 41.

Stewart, J. L. *Punjab plants, comprising botanical and vernacular names and uses*

of the trees, shrubs and herbs of economical value ..... Lahore 1869. 269 pp.

Stewart, J L. & Brandis, D. *The forest flora of north-west and central India.* The India Office, London 1874. 608 pp.

Stewart, J L. & Brandis, D. *Illustrations [by J.N. Fitch] of the forest flora of north-west and central India.* The India Office, London 1974.

Herbarium specimens at E (many, but usually poorly annotated).

Trans. Bot. Soc. Edinb. 12 : 31-33, 1874. [includes a short list of his botanical publications].

John Scott FLS (1836-1880).

Born Denholm, Roxburghshire, Scotland. Foreman in the propagating department at the Royal Botanic Garden, Edinburgh for 7 years. For a time c. 1860s took an important part in running the Calcutta Botanic Garden as curator, under Dr T. Anderson. Also worked at Darjeeling on opium poppy disease. Corresponded with Charles Darwin. Died at Garvald near Edinburgh aged 44 years.

Scott, J. *Manual of Opium husbandry .... of Behar and Benares Calcutta* 1877. 194 pp. Also papers on cultivated higher cryptogams, tree ferns in Sikkim, cycads.

Trans. Bot. Soc. Edinb. 14 : 160-161. 1883.

David Douglas Cunningham MD, FLS, FRS (1843-1914).

Born Prestonpans near Edinburgh. Studied at Edinburgh University under Prof. J. Hutton Balfour; graduated honours in Medicine 1867. Joined the Indian Medical Service in 1868, studied in pathological laboratories in Germany, before going to India in 1869. Professor of Physiology in the Medical College of Bengal and also in 1883 Secretary to the Surgeon General. For his contributions to pathology he was elected FRS (London) in 1889. In 1880 for a short period he acted as Superintendent of the Calcutta Botanic Garden.

After his retirement to the UK in 1897, made an Honorary Physician to King George V.

Published on a variety of botanical, mycological, physiological and pathological subjects.

Proc. Roy. Soc. B 89 : xv-xx. 1916; *Proc. Linn. Soc.* 1914-15 : 24-26.

Cunninghamella Matruchot. (fungi).

James Ramsay Drummond BA (1851-1921).

At school in Edinburgh. With the Indian Civil Service in the Punjab. Mainly collected in the western Punjab (now Pakistan) also around Simla and Dalhousie. Specimens and letters at Edinburgh.

Obituary : *Journ. Bot.* 59 : 174. 1921.

Sir George Watt CIE, MB, CM, LLD, FLS (1851-1930).

Born Old Meldrum, Aberdeenshire, Scotland. Studied medicine at Aberdeen and Edinburgh Universities. To India in 1873 and taught botany in Bengal for several years; at the same time making collections of local plants; in his use of detachable tag labels for specimens he was one of the first to adopt this method. Took an ever-increasing interest in the economic plants of India; organized a major exhibition on them in Calcutta 1883-84, simultaneously producing his 4-volume *Economic Products of India.* Subsequently the latter work was elaborated into his monumental 10-volume *Dictionary of the Economic Products of India.* In 1887 he was appointed to the post of Reporter on Economic Products to the Indian Government and in this capacity travelled and collected widely in India. In 1902 organized the Delhi exhibition of Indian art as part of Lord Curzon's Durbar; shortly after this his *Indian Art at Delhi* appeared.

From 1910 lived in Lockerbie, Scotland; lecturer at Edinburgh University on forestry. His very large herbarium "of Indian plants contained in 37 large cabinets" was presented to Edinburgh in the 1890s. It includes specimens collected by others, *eg* J.H. Lace; it is no longer kept as a separate collection.

I. H. Burkill, who followed Watt as Reporter on Economic Botany, said of him "a very great man on the instruction side of applied botany in India" The encyclopaedia *The Wealth of India* (New Delhi), now in the course of its 2nd edition, is the present-day continuation of Watt's pioneer work.

Watt, G. ed. *Economic products of India exhibited in the Economic Court of the Calcutta International Exhibition 1883-84.* Calcutta 1883. 4 vols.

Watt, G. *A dictionary of the economic products of India.* Calcutta 1889-93. 10 vols.

Watt, G. *The wild and cultivated cotton plants of the world: a revision of the genus Gossypium* .... London 1907. 406. pp.

[numerous other publications and official reports].

Herbarium specimens at E, BM, CAL, OXF, K; letters, manuscripts and archival material at E.

Kew Bull. 1930 : 328-330.

Primula wattii King

Sir William Wright Smith MA, FRS, DèsSc, LLD, FRSE, FLS (1875-1956).

Born Lochmaben, Dumfriesshire, Scotland. Graduated MA Edinburgh University. Appointed by I. Bayley Balfour as lecturer in Botany, Edinburgh University. From 1907-1911 in India as Curator of the Government Herbarium at Calcutta and acting Superintendent of Calcutta Botanic Garden. Collected in Sikkim and border areas of Nepal, Tibet and Bhutan. Followed Bayley Balfour in 1922 in the dual post of Regius Keeper of the Royal Botanic Garden, Edinburgh and Professor of Botany. He died, still in harness as Regius Keeper, in Edinburgh.

Numerous botanical publications, especially on *Primula* and *Rhododendron.*

Herbarium specimens at E, CAL; correspondence at E.

Trans. Bot. Soc. Edinb. 37 : 142-145. 1956.

[**John Macqueen Cowan** (1892-1960), who was deputy to Sir William Wright Smith from 1930-1954, acted as Superintendent of the Calcutta Botanic Garden 1927-28].

ACKNOWLEDGEMENTS

We are grateful to colleagues at the Royal Botanic Garden Edinburgh for helpful comments; and to the Librarians of the Royal College of Physicians, Edinburgh, the Royal College of Surgeons, Edinburgh, and the University of Edinburgh for providing information.

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BURKILL, I.H. Chapters on the history of botany in India. Botanical Survey of India. 1965.

DESMOND, R. Dictionary of British and Irish botanists and horticulturists. Taylor & Francis : London. 1977.

The India Museum 1801-1879. HMSO : London. 1982.

HEDGE, I.C. AND J.M. LAMOND. Index of collectors in the Edinburgh herbarium. HMSO : Edinburgh. 1970.

KING, G. The early history of Indian botany. *Journ. Bot. (London)* 37 : 454-463. 1899.

STAFLEU, F.A. AND R.S. COWAN, Taxonomic Literature vols 1, 2, 3, 4, 5, 6. 1976.

STEWART, R.R. History and exploration of plants in Pakistan and adjoining areas [a part of Flora of Pakistan ed. Nasir, E. & Ali, S.I.]. Islamabad, Karachi. 1982.

A large number of Sir George Watt's plant collections are housed in the Herbarium of the Industrial Section, Botanical Survey of India, Indian Museum, Calcutta (BSIS)-ED.

INDEX OF COLLECTORS

This is an up-to-date list of those who have collected plants (phanerogams and cryptogams) in India and whose specimens are in the herbarium of the Royal Botanic Garden, Edinburgh. Much of the information has been extracted from Hedge, I.C. and Lamond, J.M. (1970) and updated from records of collections received since. The area dealt with is restricted to present day India.

Abraham, S. since 1970.
Aitchison, J.E.T. 1894.
Allen, G.O. 1926.
Anderson, A. 1895-1915.
Anderson, T. 1855, 1862.
Arora, C.M. 1964.
Atkinson, W.S. 1876-1900.
Azmat. 1924.
Baksh, R. 1886.
Balakrishnan, N.P. 1973-74.
Banerjee, S.N.
Barclay, A. 1889-90.
Bartholemew, B. 1974
Bnattacharyya, U.C 1962-63.
Beddome, R.H. 1857-78.
Bell, W. 1864-65.
Bhambie, S. 1985?
Bisram. 1933.
Blanford, H.F. 1879-85.
Blinkworth, R.
Bogle, A.L. & M.P. 1961.
Bor, N.L. 1938-41.
Bretandau. 1894.
Brodie, A.O. 1858.
Bulkley, E. 1700-1712.
Burtt, B.L. 1969.
Butler, E.J.
Campbell, A. Rev. 1886-88.
Campbell, A. 1887.
Campbell, J. 1833-49.
Carey, W. 1824.
[Cathcart, J.F. lit. record].
Cave, C.H. 1910-1913.
Chakraborty. 1974.
Chamberlain, D.F. 1975.
[Champion, before 1926].
Chand, T.R. 1948-51.
Chandra, A. since 1970.
Chatterjee, A.C. 1902.
Chitefield. 1880.
Chopra, R.S. 1930.
Clarke, C.B. 1844-86.
Cleghorn, H.F.C 1847-57.
Collett, H. 1883.
Coode, W. c. 1950.
Cooke, T. 1888.
Cooper. R.E. 1913, 1916.
Corbett, E.D. 1965.
Cowan, J.M. 1920-23.
Cox, P.A. 1965.
Craib, W.G. 1908
Crookshank, A.
Cuming, H. 1831.
Dalhousie, Countess of. 1830-31
Dalzell, N.A. 1861.
Day, J. 1880.
Decoly. 1899-1907.
[Douglas, F. 1877-79 lit. record
Drue. 1857.
Drummond, J.R. 1885-1904.
Dubois, D. 1702.
Duthie, J.F. 1883-1893.
Elliot, W. 1852.
Elphinstone, G.H.D. c. 1870.
Ern, H. 1978.
Falconer, H. 1830-55.
Farrer, R. 1920.
Fischer, C.E.C. 1923.
Fisher, W.R. 1879.
Fleischer, M. c. 1890.
[Fleming, R.L. lit. record].
Flower, L. since 1970.
Foreau, R.P. 1923.
Furrell, J.W. 1898. [or Turrell?].
Gage, A.T. 1899.
Gallatly, G. 1878.
Gamble, J.S 1872-87.
Gandhi, K.N. 1971.
Geesteranus, R.A. 1964.
Gleadow, F. 1880.
Gollan, W. 1899-1900.
Gough, G.S. 1842.
Griffith, W. 1835-36.
Haines, H.H. 1895, 1903.
Hamilton, F. Buchanan 1806-1815
Hara, H. 1960.
Harlett. 1916.
Hart, G.S. 1900. Pakistan?
Hearle, N. 1883.
Heinig, R.L. 1891.
Helfer, J.W. 1836-38.
Henderson, D.M. 1967.
Hobart-Hampden, A.G. 1880.
Hooker, J.D. 1847-52.
Hooper, S.S. 1971.
Hope, C.W. 1871-98.
[Houldsworth list prior to 1931 · det. only].
Huggins, P.P.
Hume, A.O.
Hutchinson, P.C. 1965.
Hutton, W.F. 1857-63.
[Hyam, I. lit. record]
[Jaffray, A. 1873-76, lit. record.].
Jalan, S. 1959.
Jameson, W. 1841-60.
Janardhanan, K.P. 1961.
Jarrett, F.M. 1970.
Jenkins, F. c. 1835.
Johnson.
Kanai, H. 1960.
Kar, P.C.
Kaul, R.B. 1961.
Kaul, T.N. since 1970.
Kerr, F.H.W. 1957.
Khan, A.
Khan, I. 1924.
Khan K. 1904.
Khemani, L. 1957.
King, G. 1879-94.
Koelz, W. 1950-53.
Koenig, J.G. c. 1770.
Kurz, S. 1875.
Lace, J.H. 1890-1908.
Law, J.S. 1829-54.
Levinge, H.C. 1871.
Lido. 1961.
Lin. 1961.
Lindsay, A.K.
Lister, J L. 1876.
Lowndes, D.C. 1937.
Lowrie, A.E. 1896.
Lui 1961.
McBeath, R. 1984-85.
[McDonell, G. lit. record].
MacKinnon, P.W. & V.A. 1878-1902.
Maclagan, R. 1847.
Madden, E. 1830-50.
Mahajan, S.D. 1958.
Malhoxta.
Mann, G. 1885-90.
Marten, J. 1897-1904, 1913.
Masters, J.W. c. 1836.
[Matthew, C.G. lit. record].

Matthew, K.M. 1975.
Meebold, A.K. 1907-08.
Meijer, W. 1961.
Metz. F. 1847.
Misra, O.P. 1963.
Mitra, S.N.
Munro, W. 1838.
Murata, G. 1960.
Musselman, L. 1985.
Nair, N.C. 1961, 1974.
Naku. 1972.
Nand, K. 1890.
Nicolson, D.H. 1970-71.
Norbu. 1972.
Pantling, R. 1896.
Parker. 1863-73.
Parkinson, C.E. 1936-37.
Parmanand, N. 1934.
Pefil, S.E. 1891.
Perrottet, G.S. 1835-54.
Pradhan. 1972.
Prain, D. 1889-1903.
Quinnell, R. 1890.
Raghavan, R.S. 1960-63.
Raizada, M.B. 1936.
Raju, D.C.S. 1962.
Ram, C. 1900.
Ram, K. 1934-35.
Ramamoorthy, T.P. 1970, 1973
Rao, T.A. 1957-60.
Rau, M.A. 1960.
Rawla, G.S. since 1970
Razi, 1960.
Reid, J.R. 1885.
Rhomoo. 1912-13.
Ribu. 1912-13.
Ridley, H.N.
Ritchie, D. 1831-54.
Rogers, C.G. 1901-02.
Ross. 1854.
Roxburgh, W. c. 1800.
Russell, P. 1785-89.
Saldanha, C. 1969-71.
Sarwal, B.M. since 1970.
Sathe, A.V. since 1970.
Schlich, W. 1860.
Scott, Dr. [Bombay].
Scouler, J. c. 1827.
Shepherd. 1831.
Sherriff, G. 1939.
Shuter, J. 1827-29.
Silva, F.W. de 1824.
Simons
Sinclair, J. 1943-45.
Singh, U. 1959.
Smith, W. Wright 1909-11.
Smythe, F.S. 1937.
Smythies, A. 1880.
Spottiswoode, J. 1957.
Spring, W. 1863.
Stackhouse.
Stewart, J.L. c. 1870.
Stocks, J.E. before 1855
Sun. 1961.
Sunderdas, L. 1901.
Talbot, W.A. 1882-84.
Taslim. 1924.
Thomson, G. c. 1850.
Thomson, T. 1847-57.
Thorne, R.F. 1960.
Thothathri, K. 1974.
Tilak, V.M. 1889-90.
Togashi, M. 1960.
Townsend, C. 1973.
Treutler, W.J, 1874.
Trotter, E.W. 1887.
Tuyama, T. 1960
Vos, F. de 1965.
Waldo, D. 1708.
Wallich, N. c. 1820s.
Warburgh, O. c. 1880s?
Ward, F. Kingdon 1919-50.
Watson, W. 1865.
Watt, G. 1877-90.
Wight, R. 1831-36.
Woodrow, G.M. 1893-99.