THE RAFFLES BULLETIN OF ZOOLOGY 2013 Supplement No. **29**: 259–268
http://zoobank.org/urn:lsid:zoobank.org:pub:C7A736D7-9B8D-4EBB-8D28-AD2CF2485B0C
Date of Publication: 30 Nov.2013

DRESSER, SEEBOHM, AND THE SCOPE OF PALAEARCTIC ORNITHOLOGY

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ABSTRACT. — Henry Eeles Dresser wrote and published the nine-volume *A History of the Birds of Europe* (1871–1882, 1895–1896). This drew a definitive line under the binomial system of nomenclature for European birds. It was succeeded by a period of vigorous exchange amongst the whole community of ornithologists on the merits of trinomial (subspecies) nomenclature, in which the social and financial similarities, and the scientific and intellectual differences, of Dresser and of Henry Seebohm were important. These two friends were influential in determining the framework of the debate, in attracting men of science to Britain to work on the issue, and in publishing a series of works that progressively enlarged in scope to cover the whole of the Palaearctic region. Ironically, each provided support that helped to promote the views of the other, Seebohm by helping to secure subscribers for Dresser, and Dresser by facilitating careers for adherents to Seebohm's ideas. History has shown Seebohm to have had the greater vision and breadth of interests, enabling him to generate ideas that helped to mould modern thinking.

KEY WORDS. — Henry Eeles Dresser, Henry Seebohm, *History of the Birds of Europe*, ornithology, Palaearctic

INTRODUCTION

A History of the Birds of Europe by Dresser (1871–1882, 1895–1896) is at once one of the most famous, as well as one of the least known, books of its type. It is famous because its size, scope, comprehensiveness, and plentiful high quality illustrations have secured it a place in every popular review of great ornithological books (Sitwell et al., 1953; Fisher, 1966; Tate, 1985; Allen, 2010) as well as in the more academic bibliographies (Mullens & Swann, 1916–1917; Zimmer, 1926; Wood, 1931; Anker, 1938; Nissen, 1953). Hence its existence is known to many. It is poorly known because of its rarity and cost—but these cannot be the only reasons—and examples from its illustrations have seldom been reprinted in other works. Hence its contents are known to few.

Today, Dresser is a misty figure from the past whose place in the ornithological development of Britain, Europe, and the Palaearctic is poorly appreciated. So too is his relationship with the better known ornithologist Henry Seebohm, who was not exactly his mirror image but, to take a metaphor from palaeontology, the two men resembled slab and counter-slab. My thesis is that the two of them acted key parts in the development of approaches to the ornithology of the Palaearctic, their influence extending well into the twentieth century. The social context behind these developments was inseparable from the academic context.

PERSONALIA

Henry Eeles Dresser. — Joseph Dresser III (born in 1770) was a notable resident in the hamlet of Topcliffe, set in a pastoral landscape just south-west of the small town of Thirsk, Yorkshire. In around 1800, he married Rebecca Eeles of Durham. His was a prosperous family, owning Topcliffe Grange Farm and living at Topcliffe Mill, a substantial rectangular, brick-built mill that still stands today on the banks of the River Swale. In 1820, he founded, with partners, the bank known as Joseph Dresser & Co., with premises in the main street of Thirsk at Kirkgate close to both St. Mary's Church and the Friends' Meeting House. At the same time he continued the corn milling business, and was reputed to rule the corn market in Thirsk and Ripon through his superb memory for figures (Phillips, 1894). The bank was taken over by the Yorkshire Banking Co. in 1835 and continued as the Yorkshire District Banking Co., with Joseph's son Henry Dresser (1803–1881) appointed as manager of the head office in Leeds from 1840–1841 onwards.

In 1824, Henry married Eliza Ann Garbutt (born in 1807) of Hull, whose father Robert Garbutt traded with Hackman & Co. of Vyborg, close to the border between southern Finland and Russia. Henry Eeles Dresser (1838–1915) was their sixth child and first son, his middle name deriving from his grandmother's maiden name. When the family moved to Leeds in 1841, Henry Eeles was less than three years old,

and three of the younger children were born in Leeds before another move in 1846 to Farnborough, Kent, where their last child was born in 1848. The house at Lock's Bottom, Farnborough, was named Topcliffe Grange in allusion to its Yorkshire predecessor, but it no longer exists.

Henry Eeles Dresser was sent to school in Bromley, Kent, and boarded with other pupils of the school at a house in Lewisham. At the age of 14 in 1852, his father's intention being to train him up for the Baltic timber trade, with a view to taking up the business already operated by himself and his father-in-law Robert Garbutt, he was sent to school in Ahrensburg, to learn German, and afterwards to Gefle and Uppsala (Anonymous, 2013a) to learn Swedish. Walter Rothschild (1916) lists some of his travels in Europe, Scandinavia, and around the Baltic. He mentions Dresser's visit to Texas in 1863, which was one of many thousands of blockade evasions during the American civil war (Anonymous, 2013b). There were disagreements about the items he was supplying to the Confederates: "blankets, quinine, and other goods in short supply" (Anonymous, 2013a), or Manchester-manufactured Enfield rifles (Anonymous, 2013b), but no disagreement about the value of his spare time ornithological output, written up by Dresser (1865–1866).

Dresser was fully integrated into the professional and serious amateur ornithological community (Anonymous, 2013a). He was a member of the British Ornithologists' Union and for a time was its secretary and treasurer (1882–1888), a fellow of the Linnean Society of London, of the Zoological Society of London, and later an active member of the Society for the Protection of Birds, for which he edited a long series of popular pamphlets in the last decade of the century. He was a foreign honorary member of the Nuttall Ornithological Club (Cambridge, Massachusetts: elected 1878), and honorary fellow of the American Ornithologists' Union (elected 1883). He died in Monaco in November 1915 at the age of 77, having lived for several years at the Villa Marie Louise, Cannes. Dresser's collection of skins had been lodged with the Manchester Museum since 1899, and on his death it was purchased for the museum by the Bolton businessman and Quaker, J. P. Thomasson. His egg collection was acquired by the same museum in 1912. Much information relating to Dresser's background and his ornithological activities, including many of the points mentioned above, is given by Anonymous (2013a), McGhie (2009, 2012), and McGhie & Logunov (2005), while McGhie (2011) describes various publication details and dates for Dresser (1871–1882), and their taxonomic consequences.

Henry Seebohm. — Benjamin Seebohm (1798–1871) was a wool merchant, and a member of a family of German origin, from Bad Pyrmont, who had settled near Bradford in 1814. He married Esther Wheeler (1798–1864).

Their first son, Henry, was born in 1832. Many biographical details of Henry Seebohm, his ancestry and family are given by Sharpe (1902), R. Seebohm (2004), and Anonymous (2013c). He travelled to Constantinople and Smyrna in 1872; to northern Norway with Robert Collett in 1874; to Pechora, Siberia, with J. A. Harvie Brown from 3 Mar.–11 Sep.1875, and to the Yenisei with Captain Joseph Wiggins from 1 Mar.–10 Oct.1877. These are just a few of his better documented travels. Many others are listed by Sharpe (1902). His own travel books give a wealth of information about his observations, though little personal detail about himself (Seebohm, 1880, 1882), and are still well worth reading, as are his various scientific works from which much can still be gleaned. Based in Sheffield until 1878, he then moved to London partly in order to prepare his volume of the *Catalogue of Birds in the British Museum* (Seebohm, 1881), at the invitation of Albert Günther. Seebohm died of influenza in November 1895, at the age of 63, and several of his works were edited for publication after his death by R. B. Sharpe.

Seebohm was equally a member of the scientific community, a fellow of the Linnean Society of London, a fellow of the Zoological Society of London, and a fellow (and at one time secretary) of the Royal Geographical Society.

THE DRESSER SEEBOHM NEXUS

In 1870, when he was 32, Henry Eeles Dresser opened his office space at 110 Cannon Street, in the City of London. As Seebohm was a steel manufacturer and Dresser a metal sales agent, their two businesses must surely have been complementary. Seebohm and his family lived in Kensington, but the Dressers used various addresses both in London and in Kent (Anonymous, 2013d), and it is difficult to get a picture of which were his offices, which were homes, and the patterns of his daily or weekly commuting. In the period when he was completing his *History of Birds of Europe*, both he and Seebohm (up to at least 1885) used for correspondence the address of the publisher R. H. Porter at 6, Tenterden Street, London W1, in Mayfair: then and now a most fashionable district.

The Dressers and the Seebohms were just two of a large and intricate set of Quaker families, connected through marriage, religion, and business, and many of them additionally connected through their associations with the north of England. They shared a social and intellectual tradition, supported financially on natural resources such as coal, iron, and timber, and the manufacture of textiles, which meant provision of employment to others (often from similar social backgrounds), and involved support for charitable (especially educational) causes. Many of the families and individuals in this social circle were in banking, brewing, and shipping.

Both Dresser and Seebohm were keenly interested in ornithology, and both specialised in the birds of the Palaearctic. Both formed large collections of bird skins, Dresser about 12,000, and Seebohm more than 16,000 (Whitaker, 1896), by their own fieldwork and by purchase. Both were keenly interested in, and made large collections of, birds' eggs (Dresser, 1905–1910; Seebohm, 1896), of which Seebohm presented over 48,000 to the British Museum before his death. Both travelled extensively in western and

central Europe, Scandinavia, the countries around the margin of the Baltic Sea, and in Russia, with Seebohm reaching as far as the Yenisei at about 108°E in Siberia. Both men were multilingual, Dresser speaking English, German, Swedish, Russian and probably French, and Seebohm speaking at least English, German, French and a smattering of Russian.

Two key differences were in their personality and their intellectual approach to ornithology. There is evidence that Seebohm was unsettled in his youth, subject to depression and inertia, and found it difficult to settle to a profession. When he finally did so, in steel manufacturing, he made a great success of it, and he joined other companies as a director apparently on the strength of his reputation at being able to turn around sick companies. But even while running his successful business, he took long periods off to travel, and he left business at the early age of 56. As he aged, Seebohm's religious views appear to have shifted, and he eventually became a Freemason (R. Seebohm, 2004). About Dresser there were no such doubts: he followed parental guidance in his education, and exposure to the timber and metals trade, went where he was told to go, and smoothly entered the world of employment with great success. On the other hand, in ornithology Seebohm was the intellectual and philosopher, while Dresser was the traditionalist, compiler and workhorse.

Dresser and Seebohm both documented their interests in dozens of papers and short notes, particularly in *The Ibis*, journal of the British Ornithologists' Union, and in books. Dresser's most important publications were his *History of the Birds of Europe* (1871–1882, 1895–1896), monographs on bee-eaters (Dresser, 1884–1886) and rollers (Dresser, 1893), a manual on Palaearctic birds (Dresser 1902–1903), and on the eggs of the birds of Europe (Dresser, 1905–1910). Seebohm's most important publications were on the exploration of Siberia (Seebohm, 1880, 1882), the birds of Britain and their eggs (Seebohm, 1883), the geographical distribution of waders (Seebohm, 1887a), the birds of Japan (Seebohm, 1890), and a monograph on thrushes (Seebohm, 1898–1902). Both men were characterised by combining their ornithological interests with industrial careers, and by their enormous productivity. Physically, Dresser's *History of the Birds of Europe* was by far the greatest of these products, amounting to more than 5,100 pages and 723 plates. As was common practice with such publications it was issued in parts (84 parts for volumes 1–8, and nine parts for the supplement), and publication was made viable by seeking paying subscribers. The 25-year span of publication, with a 13-year pause before publication of the supplement, means that a substantial number of the surviving copies lack the final volume.

THE SUBSCRIBERS

The list of subscribers printed in Volume 1 of *A History of the Birds of Europe* (appearing in 1881–1882) includes 333 individuals or organisations taking 391 copies (one, the Leicester Literary and Philosophical Society, is listed twice). The list is a roll call of the names active in ornithology at the time.

The subscribers included booksellers and agents (78–80 copies), those who might fairly be described as ornithologists and other zoologists, though few of them could be professionals in the sense of having a paid position (75–80 copies), aristocracy (30–40 copies), members of a religious and family social network (about 30 copies), and institutions (18–19 copies), totalling about 240. Another 150 copies, or just under 40%, were subscribed by those who might be described as the well-to-do, interested laymen, primarily within Britain. A few copies then remained in storage, for sale complete, to any future purchaser, some being available till at least 1915, 45 years after commencement and 20 years after completion, when any remaining copies were bought over from the ailing Dresser by the famous bookseller John Wheldon.

The booksellers and agents. — In total, 24 booksellers (including printers and publishers) took about 78 to 80 copies, for some of which they would already have arranged individual purchasers. Six foreign book dealers or agents took 14 copies, while 18 book dealers or agents in Britain took 64 copies. Half of all the copies taken by booksellers were to businesses based in London, though J. E. Cornish of Manchester handled an impressive nine copies. So did Hatchard's of London.

It is the booksellers who provide some of the literary gloss to the environment within which Dresser published. According to Roberts (1895), Hatchard's was the most ancient book-business in Piccadilly, dating back to 1797. It was started by John Hatchard, who had been an assistant at bookseller Thomas Payne's exceptionally small and exceptionally popular 'Literary Coffee House'. Hatchard was patronised by Queen Charlotte, the Archbishop of Canterbury, and Lord Canning. Hatchard was a Conservative, dressed like a bishop, and published much religious material for Hannah More and the Evangelicals. According to Humphreys (1893), Liston, Charles Kemble, and other actors of the early 19th century frequented the shop. So did the Duke of Wellington—not, perhaps, at the same time. The Royal Horticultural Society was founded on 7 Mar.1804 at Hatchard's, when it was based at 187 Piccadilly (later it moved a few doors along the street). A memorial plaque commemorating this horticultural event was erected in the nineteenth century (Walford, 1878). A full account of Hatchard's is given by Humphreys (1893). Roberts (1895) gives many entertaining details about Bernard Quaritch (the firm still in the antiquarian book business today) and other booksellers of the time. He does not mention Henry Bickers & Son, publishers of Jonathan Swift and Laurence Sterne, in business till at least 1926, and purchasers of an impressive 13 copies of Dresser's work. One pictures Dresser strolling the streets of Piccadilly, Leicester Square, and The Strand, paying calls on these literary men in order to secure subscriptions.

One other tenuous literary connection is through the subscriber Lord Kesteven who, prior to his elevation in

1868, was Sir John Trollope, Member of Parliament for South Lincoln (1845–1868), and cousin to the writer Anthony Trollope. There seems no real evidence for Kesteven's interest in birds, none at all from Anthony Trollope, and no connection through publishers or booksellers.

Institutions. — Only three of the subscribing institutions were in Britain, and 16 overseas. The interest of the Zoological Society of London is clear. The Leicester Literary and Philosophical Society had been founded in 1835, and advised the local council on the establishment of a museum, containing an impressive library (Crawforth, 2009); in 1844–1845 this library had been the haunt of Alfred Russel Wallace and Henry Bates, and was clearly still purchasing important works. The interests of the Royal Artillery Institution at Woolwich are less obvious; perhaps they thought Dresser's multi-volume work was a guide to shooting?

Eleven of the subscribing institutions were overtly zoological, and eight were of a more general university or public character, though some of these (e.g., University of Christiania, Norway) would likely have made the purchase at the instigation of an ornithologist (in that case, Robert Collett).

The ornithologists and zoologists. — There were at least 10 Fellows of the Royal Society, one Fellow of the Royal Society of Edinburgh, 48 Fellows of the Zoological Society of London, and 20 other prominent ornithologists or other zoologists, anatomists and fisheries experts amongst Dresser's subscribers. These minimum figures (because others might not have listed their affiliations) included some of the most famous ornithologists of the day, office holders in national institutions, and men who had travelled with Dresser, with Seebohm or with both. There were also two important artists: Ernest Neale, and Joseph Wolf, both of whom contributed some illustrations to Dresser's work. The main artist, J. G. Keulemans, was not (and probably could not afford to be) a subscriber.

Ornithologists based in India formed a distinct and prominent sub-set amongst the subscribers. They included John Anderson, J. Biddulph, W.T. Blanford, Allan Octavian Hume, and Eugene Oates. If the East Indies are included, then the Marquis of Tweeddale, Gov. Ussher of Labuan, and F. Nicholson who wrote on the birds of Sumatra should also be included, though only Ussher was based there.

The social network. — Dresser's subscription list was headed by three members of royalty: HM The King of Italy, HRH The Duke of Edinburgh, and HH The Maharajah Duleep Singh. In all they included one ruling monarch and 28 or more peers, plus some related to peers (for example the splendidly named Frank Wyamarus Cave-Brown-Cave), and a few others who were destined to become peers. Between 30 and 40 subscribers could therefore be considered members of the aristocracy.

Some 30 of the 333 subscribers were linked by descent or marriage to the religious and family network of Dresser and Seebohm (e.g., see Milligan, 2007). These seem to have included members of the Backhouse, Barclay, Blanford, Brocklebank, Buckley, Buxton, Crosfield, Dixon, Dodgson, Graham, Gurney, Hanbury, Jesse, and Lucas families, as well as Seebohms, and possibly others amongst the subscribers' list were also members of the same network now undetected. Some of them, for example Blanford and the Gurneys, were also ornithologists. The Barclays and Hanburys were philanthropists owning banks (Barclay's Bank) and breweries (Truman's) in London, Backhouse was a banker in Darlington, Gurney senior a banker in Norwich, Dixon a shipbuilder and owner of Backhouse & Dixon, and so on.

An illustration of this social network is given by McCann (1977), touching on benevolent institutions such as the Spitalfields Soup Society, Spitalfields Benevolent Society, and Spitalfields Association, but with a perhaps unnecessarily cynical view of their motives:

"Merchants, bankers, and large businessmen were strongly represented on these [charitable] associations. They gave considerable financial aid to Spitalfields charities and schools, supplementing the relatively limited resources of the smaller silk manufacturers, wholesalers, warehousemen, and small businessmen resident in the district. Aid on this scale can be explained partly by fear of the potentially inflammable concentration of the poor (with an insurrectionary tradition) virtually on the city's borders; few things boosted subscription lists more than a riot. But assistance from outside was greatly facilitated by the peculiar religious and familial associations of Spitalfields capital at this period. The two most active philanthropists were [a Dresser subscriber] Thomas Fowell Buxton, Evangelical, partner in Truman and Hanbury's Brewery in Spitalfields, criminal law reformer and leader of the anti-slavery cause after Wilberforce, and William Allen, Quaker, partner in Allen and Hanbury's the manufacturing chemists, and treasurer of the British and Foreign School Society. Allen, though he lived and worked in the city, regarded Spitalfields as his special field of operations.

"Allen's and Buxton's connections, particularly with the great brewing and banking empires of the Hoare, Gurney, Hanbury, Barclay [these four families all including Dresser subscribers], and Fry families (members of each of which were represented on the three committees) opened up Spitalfields philanthropy to the city. At least 17 of the 63 members had family or business ties with each other, the four individuals who were active on all three committees forming a nucleus. William Allen was father-in-law of Cornelius Hanbury (Spitalfields Association and School Committee) by his first wife, and married into the Hanbury family on her death. Buxton was a nephew and partner of Sampson Hanbury, the Quaker brewer, and brother-in-law of Samuel Hoare (treasurer of the Association and School Committee), Samuel and J. J. Gurney and Joseph Fry, brother of Charles Buxton and cousin of Charles Barclay, all committee members. John Sanderson, Quaker and china tea merchant, and secretary of the School Committee, was brother-in-law of Cornelius Hanbury (by the latter's second wife) and cousin to Richard Sanderson (Soup Society and Association). Peter Bedford, a Quaker silk manufacturer, was an employee of, and later

successor in business to William Allen's brother Joseph, a member of the Spitalfields Association."

Six Barclays were amongst the subscribers to Dresser's *History of the Birds of Europe*, not all necessarily related, but certainly including Hanbury Barclay, his son H. F. Barclay, and his brother Robert Barclay. The J. H. Gurneys (father and son: the J. J. Gurney mentioned above was the grandfather) were also listed, as were George, Robert and S[amuel] Hanbury. So were three Buxtons—again not all necessarily related, but including the philanthropist Thomas Fowell Buxton of Ware. There was one Hoare, not necessarily related to the brewing family. No Allens, Bedfords, Frys or Sandersons were listed, but amongst the list of 333 subscribers there may have been 14 or 15 associated with this group of Spitalfields Quaker philanthropists, and 30 (possibly more) in total from this social circle throughout the country.

To demonstrate further the close ties between the social, the natural history, and the publishing interests, the second wife of Philip Henry Gosse (the sensationally popular writer on marine life and aquaria, who wrote for van Voorst, for the Society for Promotion of Christian Knowledge and for other publishers) was a Gurney, of the banking family. The Gurneys were also related by marriage to another Quaker subscriber and banker, Edmund Backhouse of Darlington.

There was surely a relationship between the Gurneys of Norwich, and Gurney & Jackson. When the publisher van Voorst (purchaser of four copies of Dresser's work) finally retired in 1886, he handed his business to his two assistants, Gurney and Jackson, under whose name the company continued for several decades. Gurney & Jackson were the publishers of some of the younger J. H. Gurney's works. Here is another link with the ornithological world, for van Voorst was not only one of the leading natural history publishers and booksellers in London (Allen, 2010), but he was also the publisher of *The Ibis* on behalf of the British Ornithologists' Union, including part of the period (1882–1888) for which Dresser was the Honorary Secretary.

Having begun to trace such connections, it is difficult to know where to call a halt. Seebohm's father, Benjamin, was introduced to the prominent Quaker prison reformer Elizabeth Fry in London, in 1814. Elizabeth (née Gurney) was the aunt of John Henry Gurney senior, one of Dresser's subscribers. Henry Seebohm, training for business, learned about steel manufacture from a distant relative in Sheffield, Daniel Doncaster. When Dresser published, C. Doncaster of Sheffield (a son?) was one of the subscribers. In 1872, a year after Dresser began publication, Seebohm travelled to Constantinople and Smyrna, and Ahmed Pasha Vevik of Constantinople became a subscriber. It seems evident that Seebohm was actively recruiting subscribers to Dresser's work wherever he travelled. And so it goes on.

Finding the subscribers. — Dresser would have had to secure enough subscribers to make his book a viable publishing proposition—family, professional friends, members of his ornithological network. In finding subscribers, he would have been in competition with publishers of similar works, at least one of whom had been in the business for a long time, had an enviable record of magnificent publications, and many contacts. This was John Gould (1804–1881), aging but still active. Dresser had to compete for a limited market, and find subscribers who either were not subscribing to a similar current or recent work, or who could afford to subscribe to more than one. It is therefore interesting to look at the publications on the birds of Britain, Europe, and the Palaearctic before, and up to the completion of Dresser's work in 1896 (Table 1), as these were all potential competitors, particularly those just completed or overlapping in time of publication. The competition arose not only because they appealed to the same English-speaking ornithologists, but because of the big overlap in species composition between the avifaunas of Britain, of Europe, and of the Palaearctic: such books covered similar ground.

By 1870, Gould had published or was in the course of publishing an impressive array of high quality artworks, beginning with *A Century of Birds from the Himalayan Mountains* (1832, with 298 subscribers), then *Birds of Europe* (1832–1837, with 211 subscribers), the seemingly never-ending *Birds of Asia* (1850–1883, with 162 long-suffering subscribers), and *Birds of Great Britain* (1862–1873, with 468 subscribers). Of these, *Birds of Europe* was the most similar in scope, but nearly 40 years out of date, making *Birds of Great Britain*, appearing regularly and with high quality illustrations by Joseph Wolf and others, the most direct competitor. By contrast, *A History of the Birds of Europe* was Dresser's first major publication, and it commenced while Gould's most popular book was still being issued. In publishing his own major work, Dresser had yet to build up the experience and loyal clientele that an apprenticeship in publishing earlier, smaller works might have supplied. The intention had been for R. B. Sharpe and Dresser to have collaborated, and Sharpe's (1868–1871) experience with his book on the kingfishers would have helped, but Sharpe had had to pull out after only 13 parts had been issued (Allen, 2010).

Effectiveness in publishing. — To compare Dresser with John Gould would be to compare him with the best and most entrepreneurial of all the 19th century natural history book-machines. Like Gould, Dresser had a businessman's approach with rigorous management of various interlocking processes (artwork, writing, lithography, printing of text and plates, outsourcing reproduction of the plates to Hanhart's and the text to Taylor & Francis, as well as maintaining the subscribers' lists and addresses up-to-date, encouraging further sales and ensuring prompt distribution). These interlocked in the serial dependence of each step on the others—timing, sequence, and efficiency, as mistakes or delay in any one step would lead to knock-on delays elsewhere in the chain.

Unlike Gould, Dresser had a much smaller team (permitted by his reliance on a single artist, and by outsourcing more steps of the lithography process). In spite of this, and in spite of having a separate business to conduct (whereas

Table 1. The sequence of major 19th century publications on the birds of Britain, Europe and the Palaearctic that provided potential competition with Dresser for purchasers: the number and quality of coloured plates had a powerful influence on sales.

Author(s)	Date	Title	Illustrations
Selby, P. J.	1821–1833	Illustrations of British Ornithology (2 vols.)	214 plates
Gould, J.	1832–1837	The Birds of Europe (5 vols.)	449 plates
MacGillivray, W.	1837–1840	A History of British Birds (5 vols.)	woodcuts
Yarrell, W. B.	1837–1843	A History of British Birds (3 vols.)	520 woodcuts
Morris, F. O. & B. Fawcett	1851–1857	A History of British Birds (6 vols.)	358 plates
Bree, C. R.	1858–1863	A History of the Birds of Europe, not observed in the British Isles (4 vols.)	238 plates
Gould, J.	1862–1873	The Birds of Great Britain (5 vols.)	449 plates
Dresser, H. E.	1871–1882	A History of the Birds of Europe (8 vols.)	634 plates
Seebohm, H.	1883–1885	A History of British Birds (4 vols.)	68 plates
Lilford, Lord	1885–1898	Coloured Illustrations of the Birds of the British Islands (7 vols.)	421 plates
Sharpe, R. B.	1894–1897	A Hand-Book to the Birds of Great Britain (4 vols.)	124 plates
Dresser, H. E.	1895–1896	Supplement to A History of the Birds of Europe (1 vol.)	89 plates

book production was Gould's main business), Dresser's work reached a similar and sometimes superior level of artistic skill, physical size and impressiveness, and exceeded most of Gould's works in technical content. Furthermore, unlike Gould, Dresser had a much better field knowledge of the birds he was dealing with, and produced a substantial, scientific text. Even if much of it was the reprinting of quotations from already published sources, he was doing an exercise in compilation and analysis that produced far greater depth of information than was found in Gould's works.

Unlike Gould, Dresser's major industrial business (dealing first in timber and then in metals) was probably able to provide some financial support, storage space, and management experience. One could say that Dresser was not better than Gould, who produced many more books, some of them more magnificent, in larger format, with exquisite plates (e.g., on the birds of paradise), but Dresser's standard of achievement was certainly very similar, and provenly so in all aspects of the process (acquisition of subscribers, writing, commissioning artwork, printing, lithography, and distribution). Not least of Dresser's achievements was keeping on schedule, with one part about every seven weeks on average, consisting of an average eight plates and 56 pages (there was some variation in size and content of the parts, especially those destined to form the illustration-free Volume 1). This means that Keulemans was producing one picture every six days, and Dresser was producing text at the rate equivalent to one printed page per day (around 600 words) for 11 years as well as fulfilling all the financial and management responsibilities. Stamina and consistency must have been among his prime traits; the sustained effort and timely completion are particularly impressive given that the withdrawal of Sharpe after only 13 parts must have been a severe blow, halving the manpower available to work on the text.

Through business, travel, and his social network, Dresser would have known many of his subscribers personally. He could not match Gould's pulling power in terms of names and status. Allen (2010) claims 12 monarchs and over 100 peers for Gould's *Birds of Great Britain*, although I count only two monarchs plus two other members of royalty and 90 peers, in comparison with one monarch and 28 peers for Dresser's *History*; but his total subscriber profile is still impressive, and in terms of financial support the discrepancy is not great (Gould's 468 subscribers, versus Dresser's 333 subscribers for 391 copies), with total revenue about three quarters of Gould's. For further comparison, Gould's five-volume *The Birds of Europe* (1832–1837) contained 449 plates (50, 99, 93, 103, and 104 plates respectively in volumes. 1–5), but each plate was accompanied by just a single page of text, and the total amount of text including preface and introduction was little more than one-tenth of that prepared by Dresser. For that work Gould had 211 subscribers, including three monarchs (of Great Britain, Austria, and Prussia) and an hereditary Grand Duke (of Tuscany), and 207 others.

DRESSER'S PLACE IN ORNITHOLOGICAL DEVELOPMENT

Range of achievements. — The comparison above is merely between the *History of the Birds of Europe* and a selection of Gould's works. Dresser (1884–1886, 1893) also produced two folio books on bee-eaters and rollers, and altogether he wrote approximately 7,000 pages of text (in books and journals) and published more than 780 coloured lithographs. James Fisher characterised Dresser as a "bee-eater and roller expert" (Fisher 1966), but in fact his North American and European field experience would have limited his exposure to these as living birds. Reasons to choose bee-eaters and rollers as the subjects of his next books could have been that R. B. Sharpe had already covered the kingfishers; that all three families are (and were) adjacent in the taxonomic sequence of birds; and that there might have been a possibility of collaborating with Sharpe. Dresser is likely also to have been influenced by these being manageable-sized groups (no more than 30 or so species to be covered per family), brightly coloured (therefore very attractive subjects for illustration), and families that had not been treated by Gould. High quality plates by Keulemans should therefore have had appeal to purchasers.

Dresser was the single biggest factor in establishing Keulemans in British bird art, by providing consistent, long-term, high profile, dependable employment over 11 years. Although Keulemans had already illustrated Sharpe (1868–1871), with some resultant criticism of the colouring, he might have found it much more difficult to break into the profession in Britain if he had had to rely on small, occasional jobs for a range of different employers. Dresser did not prevent Keulemans from taking on additional work, under their non-exclusive arrangement, but in total Dresser's support represented a substantial proportion (at least one sixth) of Keulemans's lifetime output, more than any other employer. Keulemans's second biggest task was for Seebohm (1898–1902), commissioned and paid for before Seebohm's death, and other large bodies of work were commissioned by Lord Lilford, Frederic du Cane Godman, and Osbert Salvin. The plates commissioned by Dresser have seldom been reproduced in later works, the one main example being in J. L. Bonhote's *The Birds of Britain* (1905) whose 100 plates were "selected by Mr. H. E. Dresser" from the *History of the Birds of Europe*.

Because of his linguistic abilities, Dresser was able to introduce key Russian, German, and Latin publications to an English-speaking scientific audience. From scattered parts of the original publication by Eversmann, he managed to consolidate a complete reprint, no full set being known when he began. In the pages of *The Ibis* he drew attention to continental European publications as they appeared and, later, he produced translations of foreign language works by ornithologists such as Buturlin, Severzoff, and Taczanowski, and helped them to publish in English-language periodicals.

Dresser, Seebohm, and their role in the Hartert and Jordan tradition. — It was Albert Günther who first brought Ernst Hartert to London, in 1891, to work on the swifts and goatsuckers for volume 16 of the *Catalogue of Birds in the British Museum* (W. Rothschild, 1934). Rothschild first met Hartert in the London offices of Dresser in early 1892, when it was agreed that Rothschild and Baron H. H. C. L. von Berlepsch would jointly finance an expedition to Venezuela and the West Indies (W. Rothschild, 1934; M. Rothschild [1983] implies that von Berlepsch was also present, which is probably correct though W. Rothschild [1934] did not explicitly say so. It seems likely that Dresser was hosting von Berlepsch during his stay.). Both Dresser and Rothschild, because of their German ornithological contacts, education, travel, and knowledge of the language, would have known von Berlepsch well, as he was similarly an avid bird skin collector as well as a proponent of bird conservation through nest boxes and winter provisioning, and an advocate of birds for pest management in forestry.

Hartert travelled to the West Indies from 1 May to early September in 1892, then returned to England and took up duties as Director of the Zoological Museum at Tring. He then visited Germany, and, introduced to Karl Jordan apparently at von Berlepsch's residence Schloss Seebach near Hannover-Münden, recommended Jordan to Rothschild as curator of insects. Jordan was invited to Tring, visited for a preview in late 1892, and had accepted the appointment by 31 Dec.1892 that year (Johnson, 2012), arriving in Tring to take up the post in Apr.1893.

Although Günther is indicated as the man first bringing Hartert to London (and it was he who invited Seebohm [1881] to contribute the volume on thrushes and warblers), the *Catalogue of Birds in the British Museum* was under the editorship of Sharpe, who had begun the collaboration on *History of Birds of Europe* with Dresser. Thus there were many pre-existing links between this small group of ornithologists. By early 1892 when he first met Hartert, Rothschild could judge his quality from Hartert's catalogue of birds in the Senckenburg Museum, and from his Volume 16 of the *Catalogue* (W. Rothschild, 1934). Rothschild would then have wanted to test Hartert's field abilities, and for this the important connection was with Hartert's sponsor von Berlepsch, via Dresser, rather than with Günther.

In their approach to nomenclature, however, there was a clear distinction between Hartert, Rothschild, Jordan, and Seebohm on one hand, and Dresser (and Alfred Newton) on the other. The volume on thrushes and warblers (Seebohm, 1881) was Seebohm's first extensive use of trinomials, but he used a third name then for intergrades between what he considered to be full species (for example, intermediates between *Monticola cyanus* and *M. solitaria* were named by him *M. cyanus solitaria*). Seebohm has been identified by Mayr (1959) as the first author to describe, and clearly explain the differences between, phyletic evolution within a single population versus the differentiation of populations in geographical isolation. This was in Chapter 3 of his work on the geographical distribution of Charadriidae (Seebohm, 1887a), and was seen by Mayr as a key step in development of the biological species concept. Nevertheless, at this date Seebohm was quite inconsistent. He accepted interbreeding as evidence against species status (Seebohm, 1887b), but used binomials for subspecies (or races, using the terms interchangeably), and accepted races within races (e.g., the 'race' *Phasianus formosanus* within the 'race' *Phasianus torquatus*; Seebohm, 1888). It was his written understanding of the biological processes expressed in descriptive text, rather than his use of the trinomial naming system, that aligned Seebohm with Hartert and Jordan. Furthermore, like Hartert and Jordan, this understanding was based on extensive travel, observations in the field, examination of long series of specimens in other museums, and accumulation of his own specimen collection to illustrate as fully as possible the type and extent of geographical variation in plumage. This was exactly the working method promulgated by Rothschild, Hartert, and Jordan.

It was then left to Hartert and Jordan to align the use of trinomials with the understanding of geographical variation and isolation (e.g., Jordan, 1905), reconciling the British usage with that in Germany (the Deutsche Ornithologische Gesellschaft adopted trinomials in 1884) and America (the American Ornithologists' Union adopted trinomials in 1886), and applying the system consistently to whole continents. The long and productive working careers of Hartert and Jordan,

Table 2. The sequence of major publications by Dresser and Seebohm.

Date	Dresser	Seebohm
1871–1882	History of the Birds of Europe	
1880		Siberia in Europe
1881		Catalogue of Birds in BM (Vol. 5)
1882		Siberia in Asia
1883–1885		History of British Birds
1884–1886	Monograph of the Bee-eaters	
1887		Biogeography of Charadriidae
1890		Birds of the Japanese Empire
1893	Monograph of the Rollers	
1895–1896	Birds of Europe, Supplement	
1896		Coloured Figures of Eggs
1898–1902		Monograph of the Thrushes
1902–1903	Manual of Palaearctic Birds	
1905–1910	Eggs of the Birds of Europe	

based on the enormous Rothschild collections (M. Rothschild, 1983; Johnson, 2012) enabled their influence to extend into and through the period of the Modern Evolutionary Synthesis (Mayr, 1955, 1959), so that these concepts became part of the mainstream of evolutionary thinking. Jordan's influence was felt most strongly through his revision of group after group of beetles and butterflies (Johnson, 2012), while Hartert's influence was felt most strongly through his many papers on locality-based bird collections, and his taxonomic review of the entire Palaearctic avifauna (Hartert, 1903–1923).

I wish to suggest that the parallel series of books by Dresser and Seebohm were, not a debate, but the published manifestation of a continuing scientific dialogue between these two friends and with the scientific community of the day, in which they each used the family monograph and the continent-wide zoogeographical review to set out their conclusions (Table 2). In doing so they manifested their different philosophies, Seebohm attaining far-reaching conclusions from his understanding of biological populations and processes, Dresser focusing on descriptions of morphological types.

No comparative analysis of their opinions has ever been done, but Dresser and Seebohm both performed critical functions in the development of the Palaearctic scope of ornithology. Dresser's influence was in setting out the baseline taxonomy of all European birds, according to the traditional view that each geographical variant was a distinct species. This was the key significance of the *History of the Birds of Europe* (Dresser, 1871–1882), and the reason for recognising it as a classic work. He updated this so far as European birds were concerned (Dresser, 1895–1896), and then extended the review to the whole of the Palaearctic (Dresser, 1902–1903). Reviews of pan-continental scope were not the norm for the day; it set out the background against which taxonomic debate could proceed. In human terms, Dresser secured the career of Keulemans as the major scientific ornithological artist and illustrator over a period of 40 years and helped, even if in a small way, by effecting the meeting between Rothschild and Hartert, to bring Hartert and Jordan to Britain. Eventually, these two men undermined Dresser's intellectual position on the significance of geographical variation, pushing forward trinomial taxonomic work for the next 40–60 years.

Seebohm evidently helped to secure subscribers that made Dresser's classic work financially viable, and in doing so he ensured that the treatment of geographical variation that he came not to accept was in fact fully exposed to the scientific audience of the day. His field experience and observations throughout the 1870s must have been available to Dresser while writing. Seebohm documented his own theoretical views on nomenclature, evolution, and biogeography (Seebohm, 1887a, 1893), and made some astute observations on ecology (a term first coined in 1858). Through his fieldwork and his books, like Dresser, Seebohm pushed progressively eastwards so as to enlarge his scope to the whole of the Palaearctic. The dialogue continued beyond the death of Seebohm in 1895, with the posthumous publication of his monograph on thrushes (1898–1902), and with Dresser's (1902–1903) manual. Although Seebohm died only three years after the arrival of Hartert and Jordan at Tring, his were the intellectual views that prevailed, leading Mayr (1959) to write of the 'Seebohm–Hartert School' of opinion (Haffer, 2008).

In this interplay of ideas, I argue that the social context, in its broadest sense, was not only relevant but was an important factor in enabling Dresser and Seebohm to set out their ideas. Their background enabled them to travel; to learn languages; to devote large amounts of 'leisure' time to intensive work that fascinated them and engaged their minds; to secure subscribers for their publications; and to interact with the other key figures who were, like themselves, office holders in the most influential scientific organisations of the day. It is very striking that such different intellectual conclusions on the significance of geographical variation should have been reached by two men who had so many similarities in their upbringing and circumstances.

ACKNOWLEDGEMENTS

This paper is a contribution to Supplement No. 29 of the Raffles Bulletin of Zoology, marking the eightieth birthday of the Earl of Cranbrook (V). I thank Tony Kirke Swann, formerly of Wheldon & Wesley, Ltd., Hitchin (the town where Henry Seebohm's brother Frederic and descendants settled), and Allen M. Hale of Buteo Books, Arrington, Virginia, both of whom unwittingly stimulated my interest in this topic.

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