

Clarence Bicknell's Botanical Exchanges

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It is well known that Clarence Bicknell (1842-1918) collected wild flowers for his herbarium at Bordighera, and that many of his herbarium specimens (dried and pressed plants, mounted on sheets of paper) are conserved at the Museo Bicknell in Bordighera, which he founded, and in the University of Genova, to which he bequeathed much of his collection. It is less well known that, as a result of his participation in botanical exchange networks, specimens collected by him are conserved in many other places. My research into Bicknell's botanical work shows that they are to be found not only elsewhere in Italy (Florence, Torino, Sassari, Ventimiglia) but also in Britain (Oxford, Kew), Belgium (Meise), the Netherlands (Leiden), Germany (Berlin, Frankfurt, Stuttgart), Sweden (Göteborg), France (Montpellier), Switzerland (Geneva), Austria (Vienna) and the United States (New York NY, Cambridge MA).

In this note I summarise what I have discovered concerning Clarence Bicknell's herbarium specimens: in some cases I have inspected them in the institutions that hold them; in other cases my information comes from published sources. Much more research is needed to obtain a comprehensive survey of the distribution of Bicknell's specimens, and to understand how European botanical exchange networks operated during the period when he was active.

Herbarium specimens of Clarence Bicknell

It was in Oxford that I first discovered, almost by accident, that at least 100 of Clarence Bicknell's specimens are conserved in the University Herbaria. I made this discovery when I asked to see one of Bicknell's publications¹, whereupon the manager of the herbaria informed me that I could also see specimens collected by him². The labels on these specimens, often of a standard type and in printed form, give the name of the species, the place and date where the specimen was collected, and the name of the collector. Some of the labels in Oxford include a further indication of origin such as 'Herbarium C. Bicknell Bordighera' or the name of a botanical exchange network such as 'Herbarium Normale I Dörfler', 'Herbarium Europaeum Dr C Baenitz', or 'Flora Italica Exsiccata'.

Since then I have discovered that botanical specimens collected by Clarence Bicknell exist in many other places. But it is not easy to identify which herbaria hold them. World-wide there are about 3,400 herbaria with an estimated 350 million specimens. Institutions with herbaria have often lacked the resources to catalogue their collections, even by traditional methods (lists on paper, index cards) and although some have begun to digitise their material (lists in electronic format, online catalogues) the process is often incomplete.

The book 'Index Herbariorum', published in Utrecht in 1954³, lists 13 institutions with specimens collected by Clarence Bicknell: the Universities of Genova and Torino in Italy have 'original collections' of his specimens, while 'Mediterranean collections' can be found at the Ames Herbarium, Cambridge Mass. (USA), Berlin-Dahlem Botanischer Garten (Germany), Geneva Conservatoire et Jardin Botaniques⁴ (Switzerland), Göteborg Botaniska Trädgård (Sweden), Genova University (Italy), Gray Herbarium, Cambridge Mass. (USA), Royal Botanic Gardens, Kew⁵ (United Kingdom), Leiden (Netherlands), New York Botanical

Garden (USA), Oxford Herbaria (United Kingdom), and Vienna Naturhistorisches Museum (Austria).

For Italy this list is supplemented by the book 'Herbaria', published in Florence in 2010⁶, which has a section on herbaria in Italy other than those mentioned in the Index Herbariorum. It states that specimens collected by Clarence Bicknell are at the Museo Bicknell in Bordighera⁷ and the Giardini Botanici Hanbury at Ventimiglia (University of Genova)⁸. It also mentions that specimens collected by him are at the University of Florence (Herbarium Universitatis Florentinae⁹) and the University of Genova¹⁰.

Specimens collected by Clarence Bicknell are also at the Museum of Natural History in Genova¹¹. In addition, I have found specimens collected by him in the Plantentuin at Meise in Belgium¹². Finally, a search on the internet shows that other materials from him are in France at the University of Montpellier¹³, in Germany at the Herbarium Senckenbergianum in Frankfurt¹⁴ and the Museum für Naturkunde in Stuttgart¹⁵, and in Italy at Sassari, Sardinia¹⁶

My research thus suggests that Clarence Bicknell's botanical specimens are to be found in at least 21 herbaria in Europe and the USA; further research would no doubt reveal more.

Botanical exchange networks

Not many of these 21 herbaria hold specimens that came directly from Bicknell: it is the case for the Museo Bicknell in Bordighera, the University of Genova, and the Geneva Botanical Garden, which has specimens that Bicknell sent directly to his friend Emile Burnat¹⁷; it may also be the case for the Hanbury Gardens at Ventimiglia and the Museum of Natural History at Genova.

His specimens in other herbaria seem to have reached them indirectly, mainly by means of botanical exchange networks. None of the material in Oxford, for example, came directly from Bicknell; it was acquired by private collectors who subsequently donated their herbaria to Oxford University.

More research is needed to evaluate the role of the botanical exchange networks to which Bicknell contributed. What rules governed their operation? Who took part in them? In which countries? What material did Bicknell provide to the networks? What did he obtain in return? What factors determined the distribution of his specimens, and their present-day location?

The object of note is not to give a reply to these questions, but to offer some clues for further research.

Exchange networks of the British Isles

In the nineteenth and early twentieth century there was widespread interest in natural history in Britain, and many clubs and societies were founded. A recent publication gives the results of an interesting analysis of the herbarium specimens distributed by botanical networks in the British Isles¹⁸.

The authors of this study remark that 'Botanists in those societies often exchanged herbarium specimens to expand their collections; they sought distant or well-travelled correspondents who could exchange specimens that were unavailable in their locality. This led to the establishing of botanical exchange clubs whose purpose was to facilitate specimen exchange

amongst botanists. Their members included people of a relatively wide social background, including scientists, doctors, clergy, tradesmen, manufactures, clerks, lawyers, and landowners'. 'Many keen collectors were members of the clergy, and botany was probably seen as a wholesome occupation during the period of the temperance movement. It was also a period of campaigning for women's rights, but strict moral codes: botany was a socially acceptable way that upper middle class and aristocratic women could engage in science'.

'In 1856, the Botanical Society of London transformed itself into the Botanical Exchange Club, the first national club of its kind. In the winter, members submitted specimens gathered during the previous year, along with a list of specimens that they desired to obtain. The distributor made up the returns starting with those people who had submitted the largest number of high-quality specimens. Once all the contributors had been allocated what they wanted, the remaining sheets were divided up between the non-contributing members based upon their desiderata'.

Using data from herbarium sheets and applying techniques of 'social network analysis' the authors of the study were able to recognise networks of botanists, identify important actors and look for evidence of grouping. 'To visualise the links between botanists, network diagrams were constructed. These diagrams demonstrate that the community of botanists was highly linked and centralised'. 'Collecting activity peaked in the period 1878–1888, both in terms of the number of people collecting and the number of specimens'. 'A notable feature of these networks is the large number of small-scale collectors that link to the main central actors'. 'The results show that a high proportion of the specimens exchanged in this period still exist, and it is anticipated that further digitisation of herbarium specimens from herbaria will further reveal the networks of botanists'.

This study of networks in the British Isles makes no mention of Clarence Bicknell, who lived in Bordighera from 1878 until his death in 1918. Although Bicknell does not seem to have been active in the British networks, he must have been familiar with them: the botanist Harold Stuart Thompson, a main actor in the British networks, visited Bicknell in 1907 at his summer home Casa Fontanalba¹⁹; J. Walter White, 'Distributor' of the Botanical Society and Exchange Club of the British Isles, visited Bicknell at Casa Fontanalba in 1911; and later the Botanical Society and Exchange Club published an obituary of Bicknell²⁰ of which one section was written by J. Walter White and the other probably by the Secretary of the Club, the botanist G. Claridge Druce.

Exchange networks in Europe

The exchange of correspondence, specimens and visits between botanists in Europe in the eighteenth century has been the object of much scholarly work. The persons involved include Carl Linnaeus in Sweden, pioneer in the development of taxonomy (1707-78), Albrecht von Haller in Switzerland, physiologist and collector of Alpine plants (1708-77), Jean-Jacques Rousseau in France, philosopher and botanist (1712-78) and Joseph Banks in England, explorer and plant-hunter (1743-1820). This was a period when the study of botany, and botanical works published in Latin, was part of the Europe-wide *res publica litteratorum* (republic of scholars), linking scientists, botanists, and centres of research such as the Royal Society of London, the Muséum d'Histoire Naturelle of Paris, or the Ökonomische

Gesellschaft of Bern. A recent book²¹ examines in detail these exchanges between eighteenth century botanists, applying to them the techniques of modern network theory.

But it was in the nineteenth century that the popular botanical exchange clubs were created, and although the British botanical exchange networks are well documented, our knowledge of the networks in which Clarence Bicknell was involved is very limited.

The following paragraphs summarise the information that I have been able to gather concerning the exchange networks mentioned on the labels of in Bicknell's specimens.

***Herbarium Europaeum* (Baenitz)**

Two of the specimens collected by Clarence Bicknell conserved in the Oxford Herbaria have printed labels with the heading 'Dr C Baenitz Herbarium Europaeum'. These specimens are of *Campanula sabatia* and *Campanula media*, both collected near Bordighera in 1895

Carl Gabriel Baenitz (1837-1913) born in Bierzwnik (Poland), was a teacher in Lubsko, Zgorzele (Poland), Königsberg (Germany, now in Russia), and retired to Breslau (Germany, now in Poland). He published a number of botanical textbooks including *Lehrbuch der Botanik in populärer Darstellung* (Textbook of Botany in Popular Representation), Berlin, 1880, and was active as a botanist particularly in Silesia (Germany, now mostly in Poland). He is commemorated in the name of the species *Rhododendron baenitzianum*²²

The *Herbarium Europaeum* of Baenitz, an encyclopaedia of botanical species with descriptions and illustrations, was published in a series of volumes from 1867 to 1900. His work on *Herbarium Europaeum* appears to have involved also his management of a botanical exchange network with the same name. Other herbariums created by Baenitz were *Herbarium dendrologicum*, *Herbarium Americanum* and *Herbarium florae phanerogamicae Germaniae et Helvetiae*

***Herbarium Normale* (Dörfler)**

Five of the specimens collected by Clarence Bicknell conserved in the Oxford Herbaria have printed labels with the heading 'Herbarium Normale I Dörfler'. These specimens are of *Campanula isophylla* (collected at Finalmarina in 1885), *Campanula sabatia* (collected at Borghetti Santo Spirito in 1895), *Campanula medium* (collected at Bordighera in 1895), *Primula allionii* (collected at San Dalmazzo di Tenda in 1895) and *Pimpinella bicknellii* (collected in Majorca by Bicknell & Pollini²³). The latter is a species endemic to Majorca, discovered by Bicknell and named after him in 1898 by John Briquet, Director of the Botanical Garden of Geneva.

Ignaz Dörfler (1866-1950) was an Austrian botanist whose *Herbarium Normale: Schedae Centuriarum* published in Vienna from 1894 to 1915 was compiled from dried specimens (exsiccata) obtained through botanical exchange, to which Bicknell contributed. In the summer of 1896 Bicknell visited a number of cities in central Europe including Vienna, where he tried to visit Dörfler who was not at home. In Val Casterino in July 1897 Bicknell mentioned that he was looking for 'a number of common species' at Dörfler's request²⁴. Dörfler's *Botaniker-Adressbuch: Sammlung von Namen und Adressen der lebenden Botaniker aller Lander* published in Vienna in 1902 mentions Clarence Bicknell.

Another botanical exchange network, the Botanischer Tauschverein, seems to have existed in the mid-nineteenth century in Vienna. In 1879 the Director of Vienna's Botanical Museum, Anton Kerner von Marilaun (1831-98), began the series 'Flora exsiccata Austro-Hungarica' with labels issued also in form of a book 'Schedae ad floram exsiccata Austro-Hungaricam'

Flora Italica Exsiccata (Fiori, Pampanini, Béguinot)

Three of the specimens collected by Clarence Bicknell conserved in the Oxford Herbaria have printed labels with the heading 'Flora Italica Exsiccata'. These specimens are of *Euphorbia canuti* and *Chrysanthemum pallens*, collected near Bordighera in 1904, and *Campanula stenocodon*, collected at Tenda and Casterino in 1905; the label of the latter names the collectors as Bicknell and Pollini.

One specimen collected by Clarence Bicknell conserved in the Herbarium of the Royal Botanic Gardens at Kew has the label 'Flora Italica Exsiccata Series II'. It is of *Taraxacum pseudohoppeanum*, collected at Pian Tendasco above Val Casterino in 1911; the label names the collectors as Bicknell and Pollini.

Flora Italica Exsiccata, a project of the Società per Scambio di Exsiccata (Club for the Exchange of Dried Plants) was begun in 1904 and managed by the botanists Adriano Fiori, Renato Pampanini and Augusto Béguinot. From 1905 to 1914 the three authors published in the *Giornale Botanico Italiano* a series of 'centuries' of botanical species; publication of other volumes continued until 1927. The publications were designed to accompany herbarium specimens distributed by Flora Italica Exsiccata to interested persons and institutions.

The Società per Scambio was an offshoot of the Società Botanica Italiana of which Bicknell was a member; in 1904 its Bulletin published his article 'Una Gita Prlmaverile in Sardegna'.

Professor Augusto Béguinot²⁵ (1875-1940) was Director of the Istituto Botanico at Genova. After graduating in Rome, he taught at Padova, Sassari, Messina, Modena and Genova. We know that Béguinot met Bicknell in 1912, and corresponded with him on botanical matters; in 1931 Béguinot published the first 'biography' of Bicknell²⁶. Renato Pampanini (1875-1949) was curator of the Central Italian Herbarium in Florence, to which he donated 5,000 specimens including some collected by Bicknell.

Conclusion

The preceding paragraphs offer a brief insight into three botanical exchange networks to which Clarence Bicknell contributed: Herbarium Europaeum (Königsberg), Herbarium Normale (Vienna) and Flora Italica Exsiccata (Florence). We know much about the functioning of botanical exchange networks in the British Isles in the nineteenth century, but little about the botanical exchange networks that operated in continental Europe. These botanical exchanges produced publications of various kinds, which should be accessible in specialised botanical libraries, and it is possible that archives relating to their activities survive. With further research, more remains to be discovered.

¹ The Bodleian Library's copy of Clarence Bicknell's 'Flowering plants and ferns of the Riviera and neighbouring mountains' (1885) is kept in the library of the Herbaria

² See 'Oxford Herbaria & Clarence Bicknell' by Graham Avery, published at http://www.clarencebicknell.com/images/downloads_news/oxford_herbaria_clarence_bicknell.pdf

³ Index herbariorum: a guide to the location and contents of the world's public herbaria. Part 2(1), Collectors A-D, Lanjouw, J. & Stafleu, F. A., International Bureau for Plant Taxonomy, Utrecht 1954, sub voce 'Clarence Bicknell'. Since 1974 the Index has been managed by the New York Botanical Garden, but its online directory does not allow one to search for a collector by name.

⁴ According to Burnat's autobiography, Bicknell contributed 857 specimens to his herbarium ('Emile Burnat, Autobiographie', 1922, page 153). According to a more recent catalogue ('Les collections botaniques Emile Burnat', Hervé M. Burdet, 2006) Bicknell contributed 857 specimens from Spain and Portugal alone, and at least 300 more from the Maritime Alps, Italy, and England. A search for the name 'Bicknell' in the online catalogue of the Burnat herbarium in Geneva gives only 22 specimens, no doubt because its digitalisation programme is incomplete

⁵ See 'Kew & Clarence Bicknell' by Graham Avery, published at http://www.clarencebicknell.com/images/downloads_news/kew_clarence_bicknell_avery.pdf

⁶ Herbaria, Il grande libro degli erbari italiani, Taffetani F. (ed.), Nardini Editore, Firenze. 2010, p. 781

⁷ According to p. 781 of Herbaria (2010) the Museo Bicknell has his original herbarium, mostly of plants from the Western Riviera and the Maritime Alps (11,216 sheets)

⁸ The Herbarium Mortolense of Giardini Botanici Hanbury has 'plants gathered by Clarence Bicknell in Val Roya, neighbouring valleys, and the Cuneo area (Val Vermenagna and Val Pesio)' see <http://www.giardinihanbury.com/centro/strutture/erbario>

⁹ Bicknell's specimens in Florence were part of a donation of more than 5,000 specimens to the herbarium by the botanist Renato Pampanini, for which the registers of the *Erbario Centrale Italiano* do not specify the names of individual collectors (information received from the curator of the herbarium)

¹⁰ For the materials of Bicknell at Bordighera see p. 781 of Herbaria (2010), for Ventimiglia see p. 787, for Genova see p. 734

¹¹ In the Erbario Doria of the Museum of Natural History are specimens from 23 collectors including Bicknell, Penzig and Beguinot. Giacomo Doria, explorer, naturalist, and botanist, founded in 1866 the Museo Civico di Storia Naturale, now named after him; Doria knew Bicknell's friend Arturo Issel, and may have known Bicknell. See the list of collectors in *Contributo alla conoscenza degli Erbari del Museo Civico di Storia Naturale "Giacomo Doria" di Genova*, Mariotti G. & Poggi R., Annali Museo civico Storia Naturale Genova 01/1983, p. 647 (I am grateful to Raffaella Bruzzone for this information)

¹² See 'Belgium's Botanic Garden & Clarence Bicknell' by Graham Avery, published at http://www.clarencebicknell.com/images/downloads_news/belgium_bicknell_avery.pdf

¹³ A specimen of *Euphrasia bicknellii* collected by Bicknell is mentioned at <http://plants.jstor.org/stable/history/10.5555/al.ap.specimen.mpu017673>

¹⁴ Specimens collected by Bicknell and Pollini for 'Flora Italica Exsiccata' are mentioned at <http://www.senckenberg.de/files/content/forschung/abteilung/botanik/phanerogamen1/sammler.pdf>

¹⁵ Specimens collected by Bicknell in the herbarium of E. Klemm are mentioned at http://www.naturkundemuseum-bw.de/sites/default/files/sammlung/engelhardt_seybold_2009.pdf

¹⁶ A Herbarium Bicknell is listed among the collections in the Herbarium of the Department of Plant Science of the University of Sassari, see <http://disbeg.uniss.it/erbario/index.php>

¹⁷ Burnat seems to have given Bicknell advice on how to handle herbarium specimens; in a letter to Burnat of 3 September 1886 Bicknell wrote ‘This year I have begun seriously to make a herbier and I will follow as much as I can your good advice’

¹⁸ Q. J. Groom, C. O’Reilly, T. Humphrey, ‘Herbarium specimens reveal the exchange network of British and Irish botanists, 1856–1932’, *New Journal of Botany* 2014 Vol.4 No.2, pages 95-103

¹⁹ Thompson used Bicknell’s watercolours for illustrations in his book *Flowering Plants of the Riviera* published in 1914

²⁰ Botanical Society and Exchange Club of the British Isles, Report for 1918, page 352

²¹ Wissen im Netz: Botanik und Pflanzentransfer in europäischen Korrespondenznetzen des 18. Jahrhunderts, Dauser R. et al, (ed.), Akademie Verlag, Berlin, 2008

²² For a collection of manuscripts of Baenitz, and botanical specimens collected by him, sold by an antiquarian bookseller in Canada, together with information on his life and work, see <http://www.chelseabookfair.com/index.pl?isa=Metadot::SystemApp::BookSearch;op=detail;book=119216;image=854754>

²³ Luigi Pollini assisted Bicknell in his botanical and archaeological work

²⁴ Letter from Bicknell to Burnat of 7 July 1897 : ‘M. Dörffler m’a prié de récolter plusieurs plantes communes’

²⁵ The name Béguinot is French by origin: the family was descended from a French official who served in Italy during the Napoleonic period and settled there with an Italian wife

²⁶ *L’opera scientifica e filantropica di Clarence Bicknell* in *Atti della Societa Ligustica di Scienze e Lettere*, n. ser., vol. X, 1931, pp. 223-245