A global pharmacopoeia: George Barber and *The Pharmaceutical or Medico-Botanical Map of the World* (1869)

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Abstract

George Barber (1826-1897) was a retail pharmacist and manufacturer, and an active member of the Liverpool Chemists' Association. Between 1864 and 1880 he produced eight editions of a handbook comparing the British and London pharmacopoeias, aimed at those training for a career in pharmacy. From 1869 this was supplemented by a map plotting the global sources of plant and animal drugs used in British pharmacy. The map was available free-standing or bound into the book. It features 405 individual entries, resolving to 251 drugs – 242 of plant and 9 of animal origin. The map is both a vivid display of the worldwide network that supplied British pharmacy in the nineteenth century, and a tribute to the quality of research that could be carried out by a pharmacist distant from the library and museum resources of London.

Introduction

By the mid-nineteenth century 350 years of the interaction of global trade and colonialism had given European pharmacy access to a worldwide corpus of materia medica.[1] Well-known examples include cinchona (quinine) from the Andes, rhubarb from China, and ipecacuanha from Brazil. However, a little-known map by the Liverpool pharmacist George Barber enables us to widen the focus beyond the well-known plants (Figure 1).[2] This striking image highlights the region of production of about 250 crude drugs, mostly plant-based, used in British pharmacy in 1869. We are not aware of its reproduction in any publication on the history of pharmacy; the primary purpose of this paper is to raise awareness of this remarkable resource.[3] We discuss Barber's career, the publishing history of the map, its con-

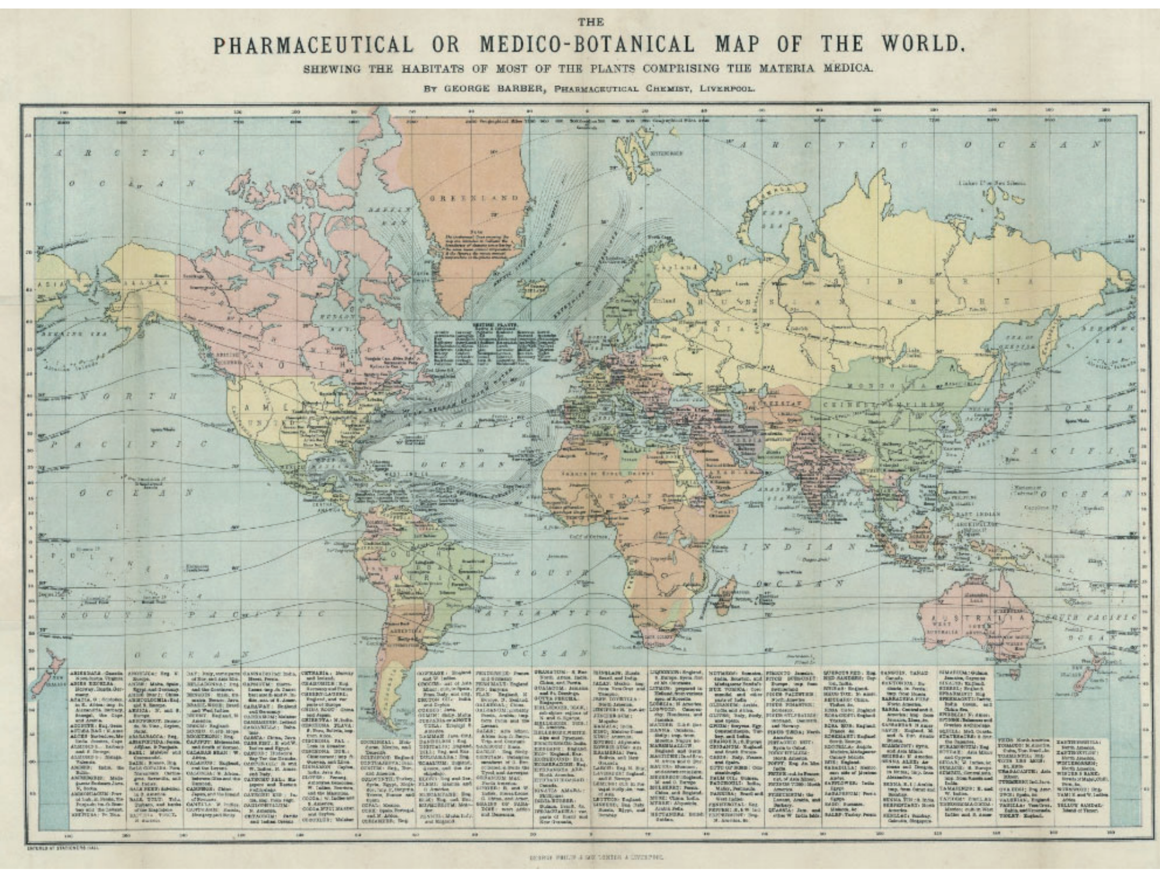


Figure 1. *The Pharmaceutical or Medico-Botanical Map of the World. London & Liverpool: George Philip & Son, 1869. Map image 287 x 445 mm; overall 367 x 538 mm. (Source: National Library of Scotland, CC-BY)*

text in relation to pharmaceutical education, and summarise the drug sources featured on the map.

George Barber, pharmacist

Barber was baptised into the Church of England on 16 January 1826, in Heywood, Lancashire. His parents were George Barber, a surgeon, and Hannah Richardson, who had married in Bury in 1822.[4] We do not know much about Barber's early life, but his father's medical knowledge as a surgeon (described in the 1861 census as a general medical practitioner)[5] would undoubtedly have given him a grounding in pharmacy.

From about 1853 Barber ran a retail pharmacy in Liverpool. The 1861 census records him living at 51 Great George Street, Liverpool, as a pharmaceutical chemist with his sister Eliza, and a chemist's assistant, an apprentice and a servant. In 1863 he married Mary Ann Drinkwater, daughter of a Warwickshire draper.[6] At the time of the 1871 census records they were still at Great George Street, but a notice in 1875 records the move of his Crimson Marking Ink business ('where the manufacture has been carried on for the last 22 years') and their home to 73 Botanic Road, Liverpool.[7] This adjoined Wavertree Botanic Garden and Park, one of the earliest public parks in Liverpool. The retail pharmacy at 51 Great George Street was taken over by James Rigby.[8] However the *Chemist & Druggist* records that:

> … recently another shop has been closed in Great George Street. The latter premises were occupied for many years by Mr George Barber, who here originated, advertised, and made a success of his "Crimson Marking Ink." Here his useful little book, "Comparison of the London and British Pharmacopoeias," was compiled, his "Botanic Map of the World" was issued, and a profitable business was conducted. On his retirement this was taken over by a former apprentice, Mr James Rigby, who, in about two years, left suddenly for the United States, forgetting to balance with his creditors.[9]

By 1875, Barber's successful trade in ivory teeth, and the manufacturing of marking ink for marking linen 'Patronised by Her Majesty' (Figure 2), had entirely replaced retail pharmacy. The business in marking ink was carried out in partnership with Barber's brother-in-law, Walter Holgate, at the latter's premises in Club Moor, Liverpool.[10] Selling ink, paint and pigments had long been part of the pharmacist's broad "auxiliary trades"[11] at a retail level, and the move to successful wholesale manufacture in this "Golden Age of Ink Production" seems to have been a route that other pharmacists took across Europe.[12]

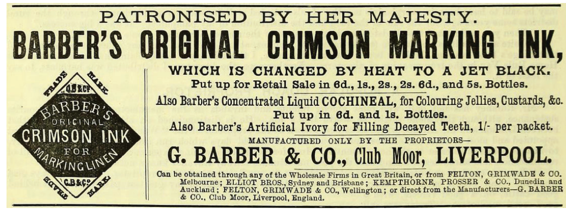


Figure 2. *Advertisement for Barber's original crimson marking ink. (Source: Chemist and Druggist, 17 August 1889, Supplement: iv)*

Barber was active in the Liverpool Chemists' Association, for example by acting as its auditor.[13] The Association possessed a fine library and museum of materia medica, doubtless an important resource in the compilation of Barber's map and books.

The young George Barber was registered as a pharmaceutical chemist with the Pharmaceutical Society of Great Britain on 1 June 1853, the same year that his retail pharmacy opened. He was one of nearly 800 chemists who were admitted as members following the previous year's Pharmacy Act, on the grounds of having commenced business before the passing of the Act.[14] His decision to join the nascent Society suggests a level of ambition at a time when registration was not compulsory, but offered an opportunity to formalise his status as a pharmaceutical chemist above those working as mere chemists and druggists. It also suggests a level of intelligent pragmatism: joining the Society at this point avoided any need for him to sit examinations to achieve recognition within a national body.[15]

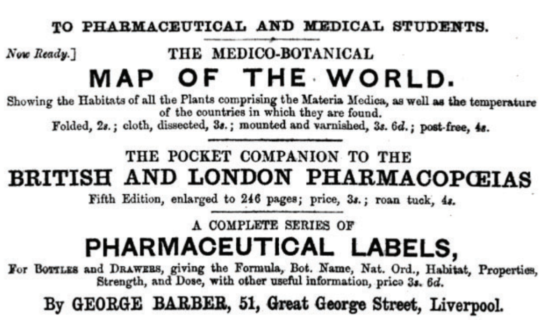
In 1881 the census records Barber as a 'Retired Chemist and Marking Ink Manufacturer', and by 1891 the Barbers had moved to Kirby Park in West Kirby, then developing as a coastal resort in the Wirral, Cheshire. They may have learnt of its virtues from William Alfred Jones, pharmaceutical chemist in Liverpool, who came to West Kirby in the late 1800s, owned the Sandlea Estate and was involved in property development.[16] They rented Elm-Bank, a substantial semi-detached property that now survives as 29 Devonshire Park. Here George died on 26 April 1897, leaving the large sum of £7,967, and he was buried at Toxteth Cemetery (Figure 3).[17] His short obituary in the *Chemist and Druggist* noted he 'had been in business many years, and was well-known and greatly respected.'[18]

Bibliographic history

The copies of Barber's map at the National Library of Scotland and other libraries are undated, but there is a consensus among holding libraries that it is dated 1868-1870. It was distributed both as a stand-alone map, and bound into some copies of Barber's *The Pocket Companion to the British and London Pharma-*

Figure 3. *Headstone for George Barber and other family members. Toxteth Park Cemetery, Liverpool, plot P.522. (Source: Photo by Robert Anderson)*

copoeias of 1851, 1864, and 1867.[19] Library catalogues first record a map as present with the book from the fifth edition, dating it to 1869, and we take this as the publication year. This is confirmed by the words 'Now ready' in an 1869 advertisement for the map (Figure 4). The fifth edition of the *Pocket Companion* was priced at 3 shillings in a cloth binding; 4 shillings in pocketbook form, and 2 shillings extra with the map bound in. The map was also available free-standing, mounted or unmounted.


TO PHARMACEUTICAL AND MEDICAL STUDENTS.

Now Ready.] THE MEDICO-BOTANICAL

MAP OF THE WORLD.

Showing the Habitats of all the Plants comprising the Materia Medica, as well as the temperature of the countries in which they are found.

Folded, 2*s.*; cloth, dissected, 3*s.*; mounted and varnished, 3*s.* 6*d.*; post-free, 4*s.*

THE POCKET COMPANION TO THE

BRITISH AND LONDON PHARMACOPŒIAS

Fifth Edition, enlarged to 246 pages; price, 3*s.*; roan tuck, 4*s.*

A COMPLETE SERIES OF

PHARMACEUTICAL LABELS,

For Bottles and Drawers, giving the Formula, Bot. Name, Nat. Ord., Habitat, Properties, Strength, and Dose, with other useful information, price 3*s.* 6*d.*

By GEORGE BARBER, 51, Great George Street, Liverpool.

Figure 4. *Advertisement for Barber's books in Pharmaceutical Journal, Advertising Sheet December 1869: 2.*

The map uses the trade names of medicinal plants, and thus complements the section in the *Pocket Companion* entitled 'Organic Materia Medica', which gives more details including botanical name, plant family, place of origin, medicinal properties, and plant part used. However, many of the materia medica listed in the book do not feature on the map, and some of the mapped drugs do not merit an entry in the book. The rest of the book contains a summary of the formulae of the British and London pharmacopoeias and other *aides memoires*. From 1864 to 1872 it covered the 1851 and 1867 pharmacopoeias; from the seventh edition it added that of 1874.

The value of a geographical approach to learning materia medica is also demonstrated by the inclusion of a map – markedly less colourful – in editions from 1877 of *A Manual of Vegetable Materia Medica* by George Wills.[20,] He was Director of the Westminster College of Chemistry and Pharmacy, arguably the most successful private pharmacy school, established in 1874 in the flurry of new schools set up to meet the demand of aspiring pharmacists after the 1868 Pharmacy Act.[21]

Barber also published *A complete series of pharmaceutical labels for bottles and drawers* (1870). This set of 900 gummed labels was intended as a learning tool, to assist novices to become familiar with the contents of a druggist's shop.

All of Barber's publications had a strong educational orientation. This was in the context of major changes in pharmaceutical education and certification in the mid-nineteenth century.[22] Concerns over the quality and safety of pharmaceutical practice led to the founding of the Pharmaceutical Society of Great Britain in 1841, and to the inaugural lectures of its school of pharmacy in 1842. Regional schools soon followed, such as the Liverpool Chemists' Association in 1849. The Pharmacy Act of 1852 was a first step in legislation, restricting titles such as "pharmaceutical chemist" to those who had passed the Society's Major examination. The Pharmacy Act of 1868 established a compulsory register of pharmacists, with the requirement that they must at least pass the Minor examination of the Society.

The combination of a defined syllabus, opportunities for training beyond that of an apprenticeship, and the legal requirement for registration, created a large market for educational works, doubtless explaining why Barber's *Pocket Companion* went through eight editions in 16 years. The market for such works was also greatly expanded by dramatic developments in printing technology from 1800, with the introduction of machine paper-making and printing, that greatly lowered the price of books.[23]

The Sixth Edition (1872), named the *Student's Pocket Companion to the British and London Pharmacopoeias of 1851 and 1867*, found approval in the *Pharmaceutical Journal*.[24] The compact size of the book, condensed from previous volumes, was 'due to the ingenuity with which every part of the book is made use of, even the apoplectic-looking title-page', and lauded its arrangement in a 'graphic manner' which 'enables the mind more readily to compare differences and to associate them together', alongside a:

> …pharmaceutical or medico-botanical map of the world, in which the names of the articles of the materia medica yielded by a district are set down after the fashion of the names of towns in ordinary maps. As far as it goes, this picturesque way of teaching materia medica, although not new, is interesting; and it is curious to notice how in a few spots – Central America and the West Indies, India and the Eastern Archipelago – the names cluster unusually thick.

There were minor criticisms, one about the country-level geographical designations:

> There are one or two points, however, that, without being hypercritical, might be objected to. For instance, although the last edition of 'Pereira' tells us that "the source of Brazilian isinglass is unknown," it does not help us much to see the name "Isinglass," set down in an inland district of Brazil, about equidistant from the Atlantic and Pacific Oceans, and far from any river marked in the map. Tapioca, too, is rather vaguely placed — almost alone —in the centre of Africa, certainly apart from which at present a very small quantity is received…

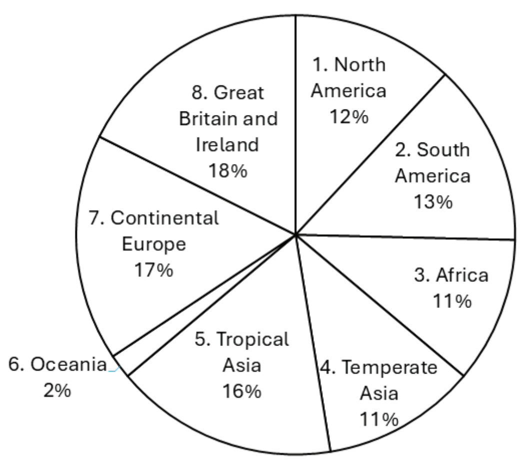


Figure 5. *Distribution of medicinal species, categorised according to TDWG terminology (with adaptation): 1. North America (40); 2. South America (45); 3. Africa (36); 4. Temperate Asia (38); 5. Tropical Asia (55); 6. Oceania (6); 7. Continental Europe (56); 8. Great Britain and Ireland (59) (n = 335; note that many species appear on the map more than once).*

Overall, however, the book was deemed a 'picturesque way of teaching materia medica, although, not new, is interesting' and was '…well suited to the purpose for which it is issued'.

Contents of the map

The map shows countries, overlaid with isothermals representing mean annual temperature, and with the vernacular names of medicinal plants placed in their area of production (Figure 5). The map features 405 individual entries, which resolve to 251 drugs, 242 of plant and nine of animal origin. Most entries relate to one species; a small number encompass more than one species or genus. Using the National Library of Scotland's copy of the map, we have mapped these to current day botanical name,[25] and to region[26] (Table 1).

This data should be used with caution; the number of species from a region will not be directly correlated with volume or value of trade with that region. Nonetheless, we can make some observations. Ease of trade obviously has a strong influence; a large number of species were obtained in Britain, or from continental Europe. These are a reminder that domestic production of medicinal plants is a highly understudied aspect of the history of British pharmacy. Equally, the well-developed networks of transatlantic trade and long-standing colonial connections led to significant trade in medicinal plants with the Caribbean and North America.

Looking to tropical Asia, much the most important source for British pharmacy was India, again with long-standing colonial connections, and reflecting India's role – particularly at the port of Bombay – as an entrepot for crude drugs. In proportion to their size, South America (excluding the Caribbean) and Africa contribute relatively few species. Alongside distance, another factor in the case of Africa might be Europe's relatively late colonial engagement with inland regions following the 1885 Treaty of Berlin.

Our assessment is that the map and its botany are generally accurate, reflecting Barber's experience handling materia medica in his pharmacy, but details of geography are sometimes incorrect. As noted above by the reviewer cited above, both tapioca and isinglass are misplaced. However, at continental level the distribution is accurate.

Table 1. *Materia medica featured on Barber's 1869 map. Organism as named on map (A = animal); page reference in the fifth edition of the Pocket Companion (1869); current biological name; region of origin adapted from TDWG terminology: 1. North America; 2. South America; 3. Africa; 4. Temperate Asia; 5. Tropical Asia; 6. Oceania; 7. Continental Europe; 8. Great Britain and Ireland.*

Map Name (A = Animal)	**Page No.**	**Biological name**	**Regions**
Abies Balsamea	212	*Abies balsamea* (L.) Mill.	1
Abies Ex.	196	*Picea abies* (L.) H.Karst.	7
Aconite	139	*Aconitum napellus* L.	8
Actaea Racemosa	139	*Actaea racemosa* L.	1
Aloes	139	*Aloe vera* (L.) Burm.f.	2
Aloes C	140	*Kumara plicatilis* (L.) G.D.Rowley	3
Aloes S	140	*Aloe succotrina* Weston	3,4
Amber	210	Various tree resins	7
Ambergris [A]	141	Produced by sperm whale (*Physeter macrocephalus* L.)	3,5,6
Ammoniacum	141	*Ferula ammoniacum* (D.Don) Spalik, M.Panahi, Piwczynski & Puchalka	4,5
Anchusa	142	*Alkanna tinctoria* (L.) Tausch	7
Angelica	143	*Angelica archangelica* L.	7
Anisatum	143	*Illicium verum* Hook.f.	4
Aniseed	143`	*Pimpinella anisum* L.	7
Arnica	144	*Arnica montana* L.	7
Arrowroot	185	*Maranta arundinacea* L.	2,3
Asarabacca	144	*Asarum europaeum* L.	8
Assafoetida	145	*Ferula narthex* Boiss.	4,5
Bael	147	*Aegle marmelos* (L.) Corrêa	5
Balm	187	*Melissa officinalis* L.	7
Balm of Gilead	145	*Commiphora gileadensis* (L.) C.Chr.	4
Balsamum Tolutanum	146	*Myroxylon balsamum* (L.) Harms var. *balsamum*	2
Baptisia tinctoria	146	*Baptisia tinctoria* (L.) R.Br.	1
Barberry	147	*Berberis vulgaris* L.	8
Bay	182	*Laurus nobilis* L.	7,8
Belladonna	147	*Atropa belladonna* L.	8
Benzoin	147	*Styrax benzoin* Dryand.	5
Bergamot	148	*Citrus* × *limon* (L.) Osbeck	7
Birthwort	144	*Aristolochia fontanesii* Boiss. & Reut.; *A. rotunda* L.	8
Bitter Almonds	141	*Prunus amygdalus* Batsch	3,7
Bitter Orange	145	*Citrus* × *aurantium* L.	7
Brazilwood	N/A	*Caesalpinia echinata* Lam.	2
Bread fruit	N/A	*Artocarpus altilis* (Parkinson) Fosberg	6
Briony	148;149	*Bryonia alba* L.; *Dioscorea communis* (L.) Caddick & Wilkin	8
Broom	206	*Cytisus scoparius* (L.) Link.	8
Buchu	149	*Agathosma betulina* (P.J.Bergius) Pillans; *A. crenulata* (L.) Pillans; *A. serratifolia* (Curtis) Spreeth	3
Buckthorn	199	*Rhamnus cathartica* L.	8
Cajuput	149	*Melaleuca cajuputi* Maton & Sm. ex R.Powell	5

Map Name (A = Animal)	Page No.	Biological name	Regions
Calabar Bean	195	*Physostigma venenosum* Balf.	3
Calamus	150	*Acorus calamus* L.	8
Calumba	150	*Jateorhiza calumba* Miers; *J. palmata* (Lam.) Miers & others	3
Camphor	151	*Cinnamomum camphora* (L.) J.Presl	4,5
Canella	151	*Canella winterana* (L.) Gaertn.	2
Cantharis [A]	151	*Cantharis* spp.	7
Capsicum	152	*Capsicum annuum* L.	2,3,5
Caraway	153	*Carum carvi* L.	7,8
Cardamoms	153	*Elettaria cardamomum* (L.) Maton	5
Carrageen	159	*Chondrus crispus* Stackhouse	8
Cascarilla	154	*Croton eluteria* (L.) W.Wright	2
Cassia	154	*Cinnamomum burmanni* (Nees & T.Nees) Blume	4,5
Cassia Fist	154	*Cassia fistula* L.	2,3,5
Castor [A]	155	*Castor fiber* L.	1
Castor oil	191	*Ricinus communis* L.	1,2,7
Cat. Areca	155	*Areca catechu* L.	5
Catechu Nig	155	*Senegalia catechu* (L.f.) P.J.H.Hurter & Mabb.	3,5,6
Catechu Pallidum	155	*Uncaria gambir* (Hunter) Roxb.	5
Caulophyllum	156	*Caulophyllum thalictroides* (L.) Michx.	1
Cetraria	157	*Cetraria islandica* (L.) Ach.	7
Chamomile	143	*Chamaemelum nobile* (L.) All.	7,8
Cherry laurel	182	*Prunus laurocerasus* L.	8
Chicory	157	*Cichorium intybus* L.	7
Chimaphila	157	*Chimaphila umbellata* (L.) W.P.C.Barton	1
Chiretta	159	*Swertia chirayita* (Roxb.) H.Karst.	5
Cinchona flava	158	*Cinchona calisaya* Wedd.	2
Cinchona pallida	158	*Cinchona officinalis* L. & *C. micrantha* Ruiz & Pav.	2
Cinchona rubra	159	*Cinchona pubescens* Vahl	2
Cinnamon	160	*Cinnamomum verum* J.Presl	5
Cloves	153	*Syzygium aromaticum* (L.) Merr. & L.M.Perry	2,3,5
Cocculus	160	*Anamirta cocculus* (L.) Wight & Arn.	5
Coccus [A]	160	*Dactylopius* spp.	2,3
Cocoa	159	*Theobroma cacao* L.	2,5
Cod Liver oil [A]	191	*Gadus morhua* L.	1,7
Coffee	161	*Coffea arabica* L.	2,4,5
Colchicum	161	*Colchicum autumnale* L.	7,8
Colocynth	161	*Citrullus colocynthis* (L.) Schrad.	3,4,7
Coltsfoot	215	*Tussilago farfara* L.	8
Conium	162	*Conium maculatum* L.	8
Contrajerva	162	*Dorstenia contrajerva* L.	2
Copaiba	162	*Copaifera* spp.	2
Copal	N/A	Various species, commonly *Protium panamense* (Rose) I.M.Johnst.	1,5
Coriander	163	*Coriandrum sativum* L.	8
Cork	N/A	*Quercus suber* L.	7
Cotton	172	*Gossypium* spp.	5

Map Name (A = Animal)	Page No.	Biological name	Regions
Cowhage	189	*Mucuna pruriens* (L.) DC.	2,8
Crocus	163	*Crocus sativus* L.	7
Croton	164	*Croton tiglium* L.	5
Cubebs	165	*Piper cubeba* L.f.	5
Cumin	165	*Cuminum cyminum* L.	7
Cusparia	N/A	*Angostura trifoliata* (Willd.) T.S.Elias	2
Dammar	165	*Agathis dammara* (Lamb.) Poir.	5
Dandelion	211	*Taraxacum* spp.	8
Digitalis	166	*Digitalis purpurea* L.	8
Dill	142	*Anethum graveolens* L.	7,8
Dragons Blood	203	*Calamus draco* Willd.	5
Dulcamara	166	*Solanum dulcamara* L.	8
Ecbalium	167	*Ecballium elaterium* (L.) A.Rich.	7,8
Elder	N/A	*Sambucus nigra* L.	8
Elecampane	N/A	*Inula helenium* L.	8
Elemi	168	*Canarium indicum* L.; *C. luzonicum* (Blume) A.Gray	5
Elm	215	*Ulmus glabra* Huds.	8
Euphorbium	168	*Euphorbia canariensis* L.	3
Fennel	169	*Foeniculum vulgare* Mill.	7,8
Fenugreek	169	*Trigonella foenum-graecum* L.	7
Fern M.	169	*Dryopteris filix-mas* (L.) Schott	8
Fig	169	*Ficus carica* L.	4
G. Juniper	180	*Juniperus communis* L.	3,7
G. Lac	N/A	Shellac from various species	5
Galangal	170	*Alpinia galanga* (L.) Willd.	4
Galbanum	170	*Ferula gummosa* Boiss.	4
Galls	171	*Quercus infectoria* G.Olivier	3,4
Gamboge	150	*Garcinia hanburyi* Hook.f.	5
Garlic	140	*Allium sativum* L.	8
Gentian	171	*Gentiana lutea* L.	7
Geranium maculatum	172	*Geranium maculatum* L.	1
Ginger	218	*Zingiber officinale* Roscoe	2,3,5
Grains of Paradise	173	*Aframomum melegueta* K.Schum.	3
Granatum	173	*Punica granatum* L.	3,4,5
Guaiacum	173	*Guaiacum officinale* L.	2
Gutta Percha	174	*Palaquium gutta* (Hook.) Baill.	5
Helleobore (Black & White)	216; 217	*Veratrum album* L.; *V. viride* Aiton	7
Hemidesmus	175	*Hemidesmus indicus* (L.) R.Br.	5
Hemp	152	*Cannabis sativa* L.	2,5
Henbane	176	*Hyoscyamus niger* L.	8
Hop	184	*Humulus lupulus* L.	8
Horehound	186	*Marrubium vulgare* L.	8
Horseradish	144	*Armoracia rusticana* G.Gaertn., B.Mey. & Schreb.	8
Hydrangea arborescens	176	*Hydrangea arborescens* L.	1
Hydrastis canadensis	176	*Hydrastis canadensis* L.	1
Ignatia Amar	177	*Strychnos ignatii* Bergius	5
Ind. Rubber	152	*Hevea* spp.	2

Map Name (A = Animal)	**Page No.**	**Biological name**	**Regions**
Indigo	178	*Indigofera tinctoria* L.	1,5
Ipecacuanha	177	*Carapichea ipecacuanha* (Brot.) L.Andersson	2
Isinglass [A]	N/A	Various fish species	2,7
Jalap	179	*Ipomoea purga* (Wender.) Hayne	1
Jeffersonia Diphylla	166	*Jeffersonia diphylla* (L.) Pers.	1
Kamala	180	*Mallotus philippensis* (Lam.) Müll.Arg.	5
Kino	174	*Eucalyptus* spp.	6
Kino	181	*Pterocarpus marsupium* Roxb.	5
Kousso	N/A	*Hagenia abyssinica* (Bruce) J.F.Gmel.	3
Krameria	181	*Krameria lappacea* (Dombey) Burdet & B.B.Simpson	2
L. Ceras [A]	N/A	*Apis* spp.	4
Larch	182	*Larix decidua* Mill.	7,8
Lavender	182	*Lavandula angustifolia* Mill.	8
Lettuce	180	*Lactuca virosa* L.	8
Linseeds	184	*Linum usitatissimum* L.	2,3,5,6,7,8
Liquorice	172	*Glycyrrhiza glabra* L.	8
Litmus	181	*Roccella tinctoria* DC	3,7
Lobelia	183	*Lobelia inflata* L.	1
Logwood	N/A	*Haematoxylum campechianum* L.	1
Madder	201	*Rubia tinctorum* L.	7
Manna	185	*Fraxinus ornus* L.; *F. angustifolia* Vahl.	7
Marshmallow	140	*Althaea officinalis* L.	8
Mastiche	186	*Pistacia lentiscus* L.	3,4
Matico	186	*Piper elongatum* Vahl	2
Mezereon	188	*Daphne laureola* L.; *D. mezereum* L.	7,8
Mosses	N/A	N/A	1
Mulberry	188	*Morus nigra* L.	4
Musk [A]	189	Secretion of *Moschus* deer	4
Mustard	208	*Sinapis alba* L.; *Brassica nigra* (L.) K.Koch	8
Myrrh	190	*Commiphora* spp.	3,4
Nectandra	190	*Chlorocardium rodiei* (R.H.Schomb.) Rohwer, H.G.Richt. & van der Werff	2
Nutmeg	189	*Myristica fragrans* Houtt.	3,5
Nux Vomica	190	*Strychnos nux-vomica* L.	5
Olibanum	192	*Boswellia serrata* Roxb.	3,4,5
Olive Oil	191	*Olea europaea* L.	7
Opium	193	*Papaver somniferum* L.	4,5,7
Opoponas	193	*Opopanax chironium* (L.) W.D.J.Koch	7
Origanum	193	*Origanum vulgare* L.	7
		Origanum spp.	
Orris	178	*Iris × germanica* L.	7
Otto	201	*Rosa × centifolia* L.	7
Palm oil	N/A	*Elaeis guineensis* Jacq.	3
Pareira	194	*Cissampelos pareira* L.	2
Patchouli	194	*Pogostemon cablin* (Blanco) Benth.	4,5
Pennyroyal	187	*Mentha pulegium* L.	8
Pepper	196	*Piper nigrum* L.	5

Map Name (A = Animal)	**Page No.**	**Biological name**	**Regions**
Pepper B&L	195; 196	*Piper nigrum* L.; *P. longum* L.	5
Peppermint	187	*Mentha × piperita* L.	1,8
Pimento	195	*Pimenta dioica* (L.) Merr.	2
Pinus palustris	212, 213	*Pinus palustris* Mill.	1
Pinus Pinaster	212	*Pinus pinaster* Aiton	7
Pinus pinea	N/A	*Pinus pinea* L.	3
Pinus sylvestris	196, 197	*Pinus sylvestris* L.	7
Pinus Taeda	212, 213	*Pinus taeda* L.	1
Pistachio Nut	196	*Pistacia vera* L.	4
Podophyllum	197	*Podophyllum peltatum* L.	1
Poppy W&R	194	*Papaver somniferum* L.; *P. rhoeas* L.	8
Prunes	197	*Prunus domestica* L.	7
Prunus virginiana	198	*Prunus virginiana* L.	1
Pyrethrum	198	*Anacyclus pyrethrum* (L.) Lag.	3,4
Quassia	198	*Picrasma excelsa* (Sw.) Planch.	2
Quince	165	*Cydonia oblonga* Mill.	4,7
R. Sanders	198	*Pterocarpus santalinus* L.f.	5
Raisins	215	*Vitis vinifera* L.	7
Red cedar	N/A	*Juniperus bermudiana* L.	2
Rhubarb	199	*Rheum* spp.	4,8
Rhus Tox	200	*Toxicodendron pubescens* Mill.	1
Ros. Can.	200	*Rosa canina* L.	8
Rosa Gall.	200	*Rosa gallica* L.	7
Rosemary	201	*Salvia rosmarinus* Spenn.	4,8
Rue	203	*Ruta graveolens* L.	8
Sabadilla	203	*Schoenocaulon officinale* (Schltdl. & Cham.) A.Gray	1
Safflower	153	*Carthamus tinctorius* L.	3,5
Sagapenum	202	*Ferula* spp.	3,4
Sago	202	*Metroxylon sagu* Rottb.	5
Salep	203	*Orchis mascula* (L.) L.	4,7
Sandalwood	N/A	*Santalum album* L.	5,6
Sanguine canadensis	N/A	*Sanguinaria canadensis* L.	1
Santonica	204	*Artemisia cina* Berg ex Poljakov	4
Sarracena purpurea	204	*Sarracenia purpurea* L.	1
Sarsa	205	*Smilax officinalis* Kunth	1,2
Sassafras	205	*Sassafras albidum* (Nutt.) Nees	1
Savin	202	*Juniperus sabina* L.	7,8
Saxifrage	N/A	*Saxifraga* sp. *Pimpinella* sp. + others	1
Scammony	82	*Convolvulus scammonia* L.; *Ipomoea orizabensis* (G.Pelletan) Ledeb. ex Steud.	4
Scurvygrass	N/A	*Cochlearia officinalis* L.	1
Senega	206	*Polygala senega* L.	1
Senna	207	*Senna* spp.	3,4,5
Serpentary	208	*Aristolochia serpentaria* L.	1
Shumach	N/A	*Rhus coriaria* L.	7
Simarouba	208	*Simarouba amara* Aubl.	2
Sorrel	N/A	*Rumex acetosa* L. or *Oxalis* spp.	8

Map Name (A = Animal)	Page No.	Biological name	Regions
Spearmint	188	*Mentha spicata* L.	8
Spigelia	209	*Spigelia marilandica* (L.) L. & other *Spigellia* spp.	1
Sponge [A]	N/A		2,7
Squill	206	*Drimia maritima* (L.) Stearn; *Drimia* spp.	7
Stavesacre	209	*Delphinium staphisagria* L.	7
Stavesacre	N/A	*Staphisagria macrosperma* Spach	3
Stramonium	210	*Datura stramonium* L.	8
Styrax	210	*Liquidambar orientalis* Mill.	4
Sugar	202	*Saccharum officinarum* L.	2
Sumbul	211	*Ferula moschata* (H.Reinsch) Koso-Pol.	4
Tamarind	211	*Tamarindus indica* L.	2,5
Tapioca	185	*Manihot esculenta* Crantz	2,3
Tea	N/A	*Camellia sinensis* (L.) Kuntze	4
Thus	213	*Pinus palustris* Mill. & *P. taeda* L.	1
Tobacco	211	*Nicotiana tabacum* L.	1,2,4,5
Tormentil	214	*Potentilla erecta* (L.) Raeusch.	8
Tous les mois	214	*Canna indica* L.	2
Tragacanth	214	*Astragalus gummifer* Labill.	4
Turmeric	163	*Curcuma longa* L.	4,5
Uva Ursi	216	*Arctostaphylos uva-ursi* (L.) Spreng.	8
Valerian	216	*Valeriana officinalis* L.	8
Vanilla	216	*Vanilla planifolia* Andrews	1,2
Veratrum viride	217	*Veratrum viride* Aiton	1
Violet	217	*Viola odorata* L.	8
Willow	203	*Salix* spp.	7,8
Winters Bark	217	*Drimys winteri* J.R.Forst. & G.Forst.	2
Wormwood	138	*Artemisia absinthium* L.	8
Xanthorrhiza	218	*Xanthorhiza simplicissima* Marshall	1
Xanthoxylon	218	*Zanthoxylum americanum* Mill.	1
Yams	N/A	*Dioscorea* spp.	2,3,5

Conclusion

George Barber's *Pharmaceutical or Medico-Botanical Map of the World* is a vivid and accurate representation of the global network that was supplying the raw materials of European pharmacy in the second half of the nineteenth century. Dating to 1869, the map captures a moment of rapid change as developments in pharmacology, transport and empire were all leading to rapid change in the availability of materia medica.[27] Barber's map was also the product of a decade when the need to evaluate the global origins of pharmaceutical products was being increasingly debated, not least with the publication of the *Pharmacopoeia of India* (1868).[28] The map is an excellent teaching tool, but might also prompt further – and much-needed – research into trade and innovation in materia medica at this time.

The map also reflects the impact of the introduction of the legal requirement to pass the Pharmaceutical Society's examinations in order to register and practice as a pharmacist. The decades after the 1868 Pharmacy Act marked a period when aspiring chemists were keen to cram knowledge through a massively increased number of private pharmacy schools, combined with a significant number of educational publications and textbooks enabling them to better understand the origins of the raw materials they were required to recognise, process and dispense.

Equally, the map is also a tribute to George Barber's expertise, and to the quality of research resources available to him not long after the beginnings of the professionalisation of pharmacy. This movement both created the demand for Barber's published books and map, and the communal resources to establish substantial libraries and museums outside London. The activity of regional institutions such as the Liverpool Chemists' Association – later integrated as a branch of the Pharmaceutical Society of Great Britain – are also a rich field for further research.

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Notes and references

1. See for example: Boumediene, S. 2016. *La Colonisation du Savoir: Une Histoire de Plantes Médicinales du "Nouveau Monde" (1492–1750).* Vaulx-en-Velin: Éditions des Mondes à Faire, 2016; Chakrabarti, P. *Medicine and Empire: 1600-1960.* London: Bloomsbury; Jackson, J.R. *Commercial Botany of the Nineteenth Century.* London: Cassell, 1890; Simmonds, M.S.J. Plants and Medicine. In Mabberley, D. (ed.). *A Cultural History of Plants in the Nineteenth Century*, London: Bloomsbury Academic, 2022: 105-26.
2. Barber, G. *The Pharmaceutical or Medico-Botanical Map of the World.* London and Liverpool: George Philip & Son, 1869. https://maps.nls.uk/view/140179364.
3. The map is cited by Charis Boke, *A dose of herbalism: Evidence and efficacy in North American medical history.* https://www.chstm.org/news/dose-herbalism-evidence-and-efficacy-north-american-medical-history and Stuart Anderson in *Pharmacopoeias, Drug Regulation and Empires. Making Medicines Official in Britain's Imperial World 1618-1968.* Montreal: McGill-Queen's University Press, 2024: 146.
4. *Bishop's Transcripts*, Bury. 1822, p. 354; *Bishop's Transcripts*, Heywood, 1826: 50.
5. *1861 England Census*, Northamptonshire, Peterborough St John the Baptist, District 22.
6. *Liverpool, England, Church of England Marriages and Banns.* St Bride, 1863: 19.
7. *Yearbook of Pharmacy.* London: J. & A. Churchill, 1875: 702.
8. Advertisement for James Rigby ('late George Barber'), *Evening Express* 30 September 1875: 4.
9. *Chemist and Druggist.* 17 August 1889: 226.
10. Will of George Barber, Probate Office.
11. Homan, Peter G. Auxiliary Trades: added income for the pharmacy. *Pharmaceutical Historian.* 2014. 44(2); 32-36. For example, a reference to "paints, oils and colours" quoted in Holloway *Royal Pharmaceutical Society of Great Britain*, 53.
12. Reissland, B. et al. *Exploring the late 19th century landscape of ink manufacturing via a collection of 90 bottles* https://openheritagescienceblog.wordpress.com/wp-content/uploads/2017/09/0105_385_reissland_icomcc_2017.pdf.
13. For example, Provincial Transactions. Liverpool Chemists' Association. *Pharmaceutical Journal.* 1856: 16(4); 281-3.
14. Holloway, S.W.F. *Royal Pharmaceutical Society of Great Britain 1841-1991.* London: The Pharmaceutical Press, 1991: 181.
15. Holloway, S.W.F. (Note 14) 1991: 181.
16. Personal Communication, Heather Chapman, West Kirby Museum.
17. *National Probate Calendar*, 1897: 110. Toxteth Park Cemetery, *Register of Burials*. Mary Ann Barber died soon after, on 18 August 1897, and is buried with her husband at plot P.522.
18. *Chemist and Druggist* 8 May 1897: 726.
19. Editions: As *The British and London Pharmacopoeias Compared* 1 & 2 (1864), 3 (1864); as *The Pocket Companion to the British and London Pharmacopoeias* 4 (1867), 5 (1869); *The Student's Pocket Companion to the British and London Pharmacopoeias* 6 (1872), 7 (1874), 8 (1880). Aside from the National Library of Scotland, we have traced copies of the map to the British Library and University of Bristol (bound in 5th edition of the book), and as sheet maps in the libraries of the University of Cambridge (missing), Natural History Museum (London), University of Oxford, Bibliothèque nationale de France, Staatsbibliothek zu Berlin, and the National University of Natural Medicine, Oregon, USA.
20. Will's habitat map. Available online as part of Wills, G.S.V. *A Manual of Vegetable Materia Medica*. Ninth edition. London: Simpkin, Marshall: 1886. https://digital.sciencehistory.org/works/8s45q9968.
21. Hudson, B. and Boylan, M. *The School of Pharmacy, University of London. Medicines, Science and Society, 1842-2012*. London: Elsevier 2013: 45.
22. Hudson, B. and Boylan, M. (Note 21) 2013: 45.
23. Howsam, L. The History of the Book in Britain, 1801-1914. In Suarez, M. and Woodhuysen, H. (eds) *The Oxford Companion to the Book*. Oxford: Oxford University Press, 2009: 180-187.
24. Review of Barber, G. *The Student's Pocket Companion to the British and London Pharmacopoeias of 1851 and 1867.* London: Philip and Son, and Simpkin, Marshall: 1872. *Pharmaceutical Journal.* 1872: Third Series 101: 980-1:
25. Updated botanical names follow the *Plants of the World Online* checklist, verified in 2023. https://powo.science.kew.org/. Zoological names follow *Global Biodiversity Information Facility* https://www.gbif.org/ In most instances the *Pocket Companion* gives a species name; where this is absent, we have sourced botanical identifications from nineteenth century works on pharmacognosy.
26. Geographical distribution has been adapted from the World Geographical Scheme for Recording Plant Distributions (Second Edition), 2001. https://www.tdwg.org/standards/wgsrpd/ as follows: 1. North America (including Mexico); 2. South America; 3. Africa; 4. Temperate Asia (including China, Japan); 5. Tropical Asia (including India, Indonesia); 6. Oceania (including Australia and New Zealand); 7. Continental Europe (including Russia); 8. Great Britain and Ireland.
27. Nesbitt, M. Trade and Exploration. In Mabberley, D. (ed.). *A Cultural History of Plants in the Nineteenth Century*, London: Bloomsbury Academic, 2022: 67-84.
28. Anderson, S. *Pharmacopoeias, Drug Regulation and Empires. Making Medicines Official in Britain's Imperial World 1618-1968.* Montreal: McGill-Queen's University Press, 2024: 146.