

PAPYRUS, PAPER AND PAPER MAKING: A VIEW OF
KEW'S ECONOMIC BOTANY COLLECTIONS*

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Summary. The first overview is presented of the paper contents of Kew's Economic Botany Collections (EBC). There are more than 350 specimens of paper representing nearly 50 plant families and more than a hundred genera. The dominant families numerically – and each for different reasons – are the *Moraceae*, *Gramineae*, *Thymelaeaceae* and *Cyperaceae*, examples from which are highlighted. Some emphasis is given to the historical context and geographical origin of papers, and to the people who collected or donated them. It is suggested that one focus of a future collecting strategy for the EBC should be the sorts of plant products, including papers, that are under threat due to losses of cultural diversity or biological diversity, or both.

In *Chambers 20th Century Dictionary* (New Edition, 1983) paper is defined as ‘material made in thin sheets as an aqueous deposit from linen rags, esparto, wood-pulp, or other form of cellulose, used for writing, printing, wrapping, and other purposes: extended to other materials of similar purpose or appearance, as to papyrus, rice paper[?], cardboard etc. It is a curious definition in its order (why linen rags first[?]), its selection of plant sources (why esparto *Stipa tenacissima*[?]) and the addendum-like mention of papyrus *Cyperus papyrus*, the original source both of paper and of our word for it.

As the processed fibres of cellulose, the principal component of cell walls, paper could be sourced from almost any plant. Which plants are actually used, however, depends on factors such as availability, transport, and economics, for certainly no plant family can claim any global monopoly through history. Rather a certain species can attain local and temporary prominence but is then swept aside by a newcomer with the backing, perhaps, of technological advance. Currently wood pulp – primarily from long-fibred soft woods – dominates the paper trade, but hardwoods can be mixed in, and increasing interest in the recycling and use of waste is bringing new, or apparently new, plant-based materials into the picture. This modern wave of exploration finds a particular parallel with the nineteenth century voyage of discovery of the uses of the plant kingdom that is so well represented by Kew's Economic Botany Collections (EBC). Curated by the Centre for Economic Botany, they offer not only

*This article is reproduced from Vol. 19, Part 1: 55–73, with improved black and white figures.

a fascinating insight into the role of Kew itself over the last 150 years or so but also of the sheer range of plants that were investigated for their paper-making qualities.

Since their beginnings under William Hooker in 1847, the EBC have had no better unifying theme other than his own oft-quoted paradigm that they ‘render great service, not only to the scientific botanist, but to the merchant, the manufacturer, the physician, the chemist, the druggist, the dyer, the carpenter and the cabinet maker and artisans of every description, who might find here the raw materials employed in their professions correctly named.’ That they attracted reciprocal interest is shown by the book title in Fig. 1. They have accreted ever since at highly varying rates. Diverse in geographic origin, they are biased towards regions where Britain (and/or Kew) had a conspicuous role or fascination, but are otherwise random in their botanical sampling or merely reflect changing trends of interest in plant uses. Often the documentation of the EBC is tantalisingly incomplete, and the description of items as ‘paper’ is inconsistently applied, and therefore irretrievable, on their database. Nonetheless, an overview of papers among 76 000 items in the EBC is worth attempting – certainly it has not been done before – to ascertain not just their geographical and taxonomic origin, but also their collectors, the processes involved, the success or otherwise of any paper-making venture, and stories or issues of particular interest. They certainly merit a much longer journey through time and space than this paper (from whatever it is made!) can allow. But any such overview must look forward as well as back and consider how Hooker’s goals may be advanced to produce new agendas for future collecting priorities.

The EBC include more than 350 specimens of paper spread over nearly 50 plant families and more than a hundred genera. Four families predominate – the *Moraceae*, *Gramineae*, *Thymelaeaceae* and *Cyperaceae* – each of them for different reasons. The bulk of the samples of the ‘lead’ family, the *Moraceae*, comprises the celebrated collection based on *Broussonetia* spp. made by Britain’s second ambassador to Japan, Sir Harry Parkes (see the portrait of *B. papyrifera* in the previous issue, Plate 432). It is the only paper set in the EBC to have been studied. Parkes’ findings about paper manufacturing in Japan were published as reports to Parliament (Parkes, 1871) but the profile of his own collection diminished until the late 1970s when, along with a counterpart collection from the

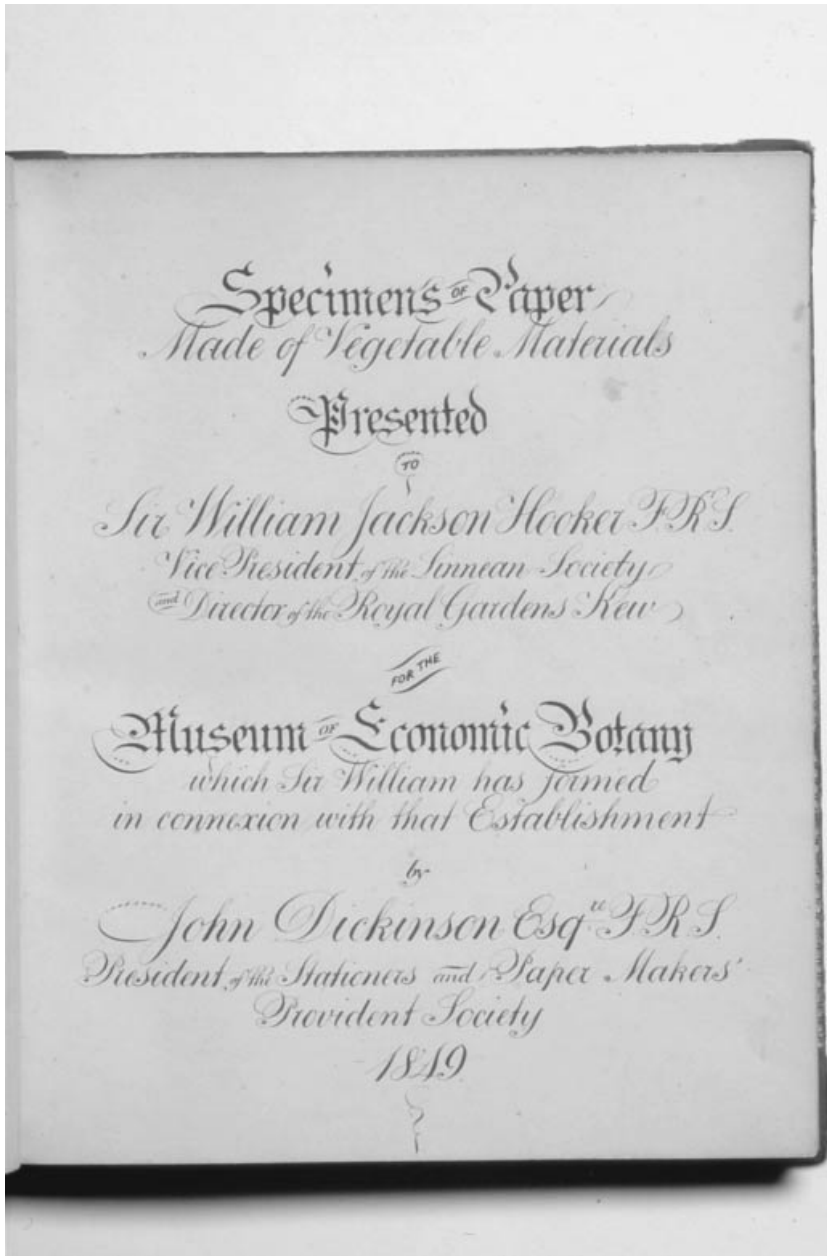


Fig. 1. Title page of a book in Kew's Economic Botany Library. Its 85 numbered pages are divided into sections made separately from flax, cotton, flax and cotton together, and straw with a small mixture of hemp. John Dickinson's son-in-law was Chairman of Routledge & Co., the company set up in 1864 to run the Ford Paper Mill (Walker, 1984).

Victoria and Albert Museum, it was ‘rediscovered’ (Webber & Thompson, 1991) and eventually taken to Tokyo for exhibition (Anon., 1994).

The Parkes collection contains no examples of the main use of paper today – for printing – but the capacity of *Broussonetia* species to be used as such is shown by the still very legible front page of the Tuesday October 27 1885 issue of *The Polynesian Gazette*, published in Levuka, Fiji. This features in the *Plants + People* exhibition in Kew’s Museum No. 1 (and is illustrated by Griggs *et al.*, 2000). Outside Japan, a significant use of *Broussonetia* bark fibre is for the tapa cloths produced over much of the Pacific for ceremonial reasons. The other paper genera of the *Moraceae* represented in the EBC are *Ficus*, likewise a dual source of fibre and paper, *Morus*, and *Streblus*.

The *Streblus asper* paper samples (Fig. 2) show that Parkes was not the only British consular staff member to be enrolled into the great network of collectors trawling for potentially useful plants and sending them to Kew. They all came from Bangkok where, in 1887, they attracted the attention of a consul, E.B. Gould. He gathered not only the raw bark of this species (‘price per bundle 3d’), but also examples of various stages of the paper making process, such as when the bark is steamed with lime, and finished products like ‘black paper of the best kind before being folded and changed into book form’ and paper after ‘after being polished and rubbed with a round stone’. He even included a hammer to beat the paper, and ‘Chinese or Indian ink with bamboo pen’ for writing on it.

The grasses (*Gramineae*) contain more paper samples (66) in the EBC than any other family bar the *Moraceae* and feature highly not because of any preponderance of a particular genus, but because so many genera (20) have at one time or another been used for paper. The most obvious candidates for paper making, the woody bamboos, come mainly from the Far East but their dearth of taxonomic data in the EBC, even to generic level, is unfortunate. The global annual production of bamboo pulp, using species such as *Dendrocalamus strictus* and *Bambusa arundinacea*, is about 1.5 million metric tonnes and there are concerns that bamboo forests could come under threat. This is doubly sad considering that waste from cereals could be a replacement fibre source. This is not a new idea. In the EBC there are paper samples from crops that represent



Fig. 2. Two samples of the paper of *Streblus asper* (EBC 43364, 43365) collected by E.B. Gould in Bangkok in 1887.

attempts to use the stems or ‘straw’ by-product: examples include temperate oats (*Avena*) [a sample from the USA], rye (*Secale*) and wheat (*Triticum*) [both France], and tropical *Sorghum* [China], rice (*Oryza*) and sugar (*Saccharum*) [both India]. Accompanying label information states that the wheat paper was ‘Inventé en 1806 par Mr Frédéric de Girard de Loumarin’ and its price was 95 centimes/kg; the colourfully named donor was the Countess Clémence de Corneiller. Tall stemmed species of *Hypparrhenia* [India] and *Pennisetum* [Uganda] also feature, as does an equally conspicuous UK plant, the common reed, *Phragmites australis*. Other UK native species represented as paper samples include marram grass, *Ammophila arenaria* (the classic sand dune stabiliser), the saltmarsh dwelling cord grass *Spartina townsendii* and the weedy couch grass *Elymus repens*. There can be few plants ‘lowlier’ than weeds, yet the donor of the last sample, a Mr Peter Warren, wrote with pride: ‘This sample of “Jeyes’s Patent Twitch or Couch Grass Paper,” was made by me, and contains no admixture of any other material’. Less certainty surrounds a scrap of paper, no more than about 4–5 cm², whose fibres were found by L.A. Boodle (Assistant Keeper of Kew’s Jodrell Laboratory from 1906–1930) to resemble those of *Stipa splendens*. Attached notes state that it was given by a Dr Hoerube of Oxford in 1901, and came from ‘Khotan, Eastern Turkestan’ having ‘formed part of some ancient MSS and Block Prints said to have been dug from the ruins of ancient cities buried in the sands of the Takla Maklan Desert’. More research is needed on this curious item, and on what may be some form of writing on it.

The *Thymelaeaceae* are represented by seven genera and about 28 samples. One of them, a paper blanket made from *Wikstroemia viridiflora*, came from another long-time resident of the Far East, George Playfair, who started his consular career as a Student Interpreter in China in 1872. Between 1882 and 1902, by which time he had become Acting Consul-General at Hankow (Hertslet, 1910), he sent Kew a dozen samples of economic interest. The robustness of the blanket contrasts with the ‘lustrous softness and lightness’ of the delicate sample of *W. japonica* paper (Fig. 3), making it, the notes on it add, ‘very good for letter-paper being but little charged with postage’. The fibrous qualities of the *Thymelaeaceae* are reflected in the vernacular name of lacebark tree for the Caribbean species *Lagetta lagetto* whose one sample of paper

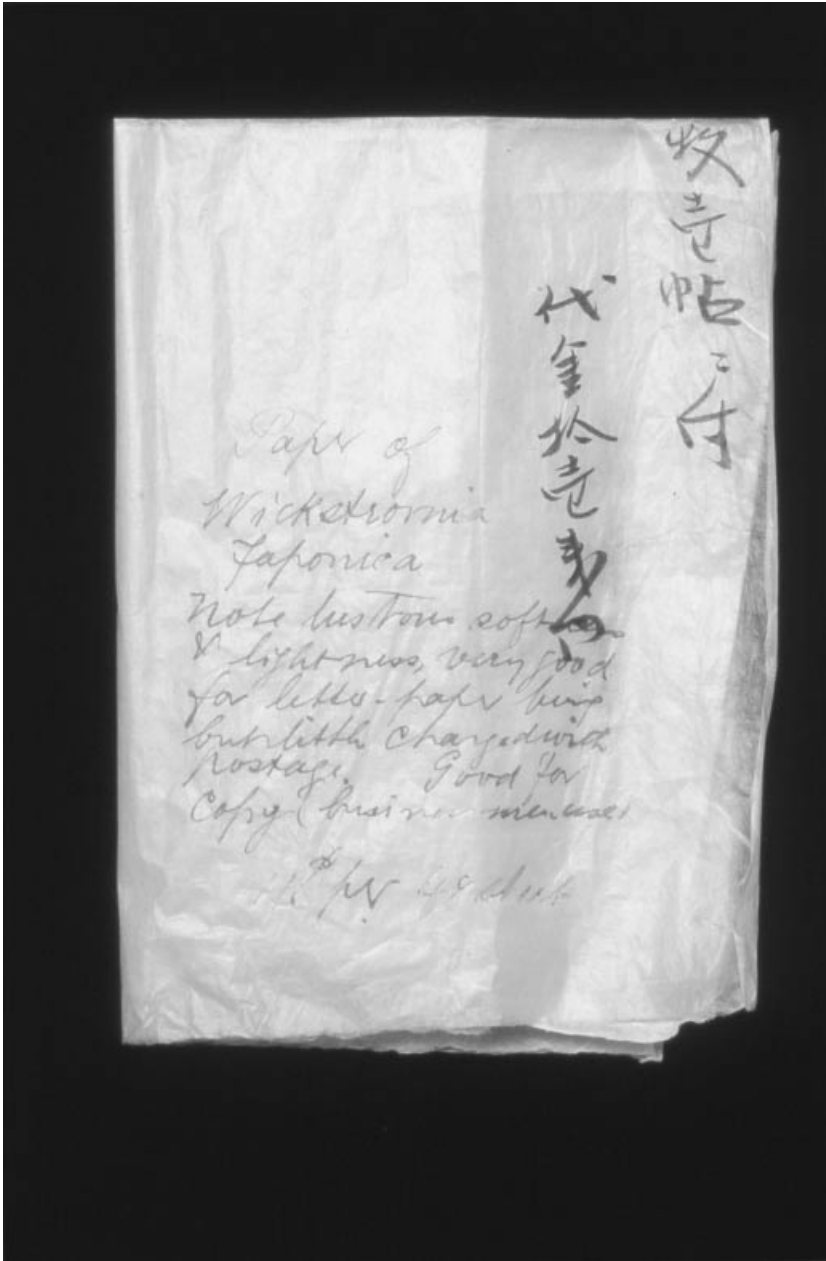


Fig. 3. Paper made of *Wikstroemia japonica* (EBC 44968). The Japanese writing says: “1 quire. Price is 11 sen.” Quire is a unit of some sort of item, e.g. paper. A sen was one hundredth of a yen. It was donated by J.H.Veitch (of the family nursery firm) and accessioned at Kew in 1893.

is the only New World representative for the whole family. Other genera represented are *Edgeworthia* (Japan) [see Plate 433, previous issue], *Lasiosiphon* (Sri Lanka), *Pimelea* (Australia), *Stellera* (India), and *Daphne* spp. (Nepal). One of the most curious, and more recent, samples is an envelope made from the bark of *D. bholua*, stamped ‘On H.M.G. of Nepal Service’, and addressed in 1975 to Tony Schilling when he was Curator at Wakehurst Place. The EBC also contain samples of paper made from another Nepalese species, *D. cannabina*, some dating from at least 1880, the year they were donated to Kew on the closure of the India Museum in London. A Major Wadden, one of many military contributors to the EBC, sent a sample from ‘Kumaon and Dotee, the N.W. Province of Nepal’, calling the plant Indian Spurge Laurel, *Daphne papyracea*. From Assam, there is a collection comprising two sections of ‘Sanchi bark for writing’, each showing a different stage in the preparation of *D. cannabina* paper. An emphasis on process for the same species is taken even further by a wooden model of a pulping vat as used for making paper in a factory in Bahraich, Uttar Pradesh in the middle of the nineteenth century. A dyed paper sheet of the species, also from India, is described as ‘remarkable for its strength’. Other samples came from the East Indies and, via the Franco-British Exhibition of 1908, from Tonkin (in present day Vietnam) where, according to label notes, it was known as ‘Giay Gio Canh’ (or simply ‘Giay Gio’). Along with further collections (Fig. 4) there is therefore quite a rich assemblage of *D. cannabina* from the past. There is not a single contemporary example, however, of the Fair Trade products from Nepal made from the species – and what will our successors think of that?

The specific epithet *cannabina* (from the Latin meaning ‘made of hemp’) clearly recalls other species important as sources of fibre or paper or both, most notably of course hemp itself, *Cannabis sativa* (*Cannabaceae*). Additionally there are plants such as the UK native hemp agrimony, *Eupatorium cannabinum* (*Compositae*; of which the EBC contain some dyed yarn rather than paper), *Hibiscus cannabinus* (*Malvaceae*; a paper sample from India was made by the Haverstoke Mills, Calcutta, in 1860) and *Urtica cannabina* (*Urticaceae*; represented just by a seed although the native stinging nettle *U. dioica* has been exploited for fibre). Fibres of *Cannabis sativa* are incorporated into office paper sourced from plants grown round London as part of a recycling initiative promoted by the BioRegional Development

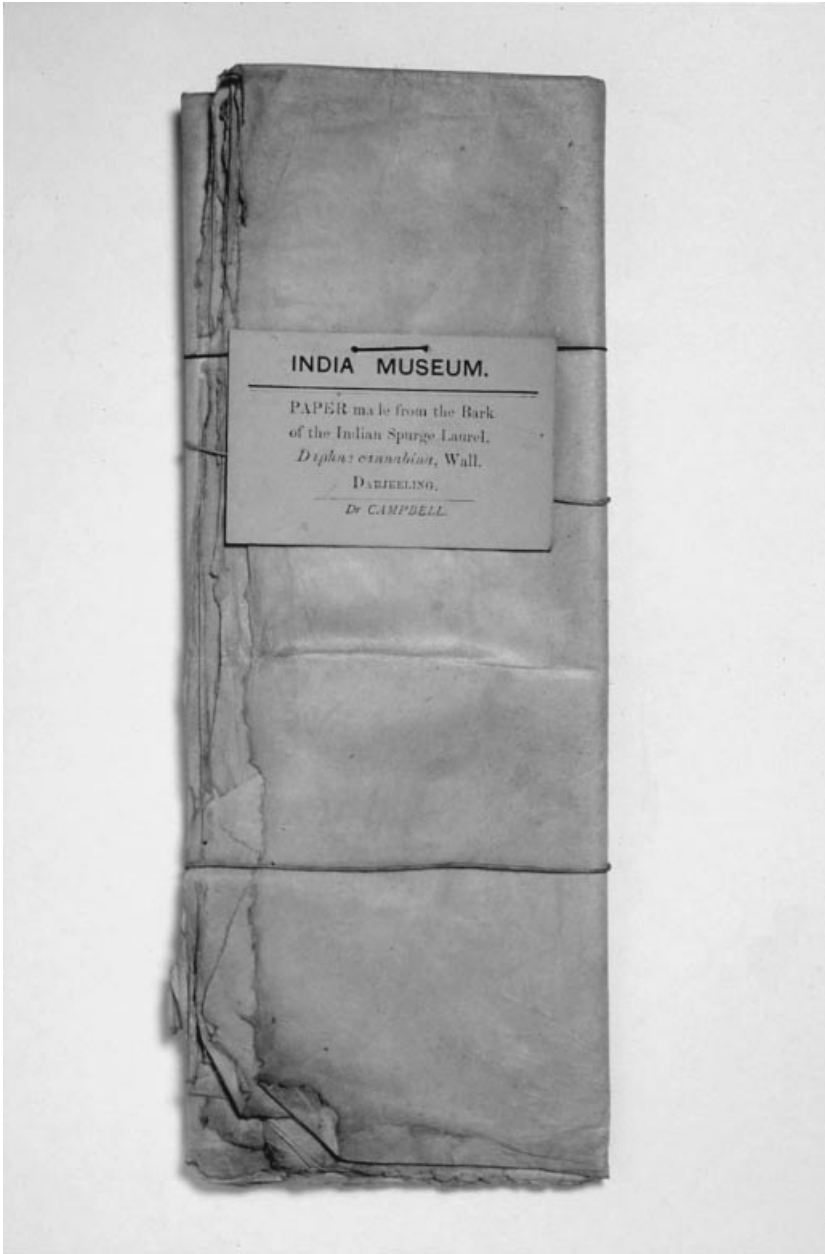


Fig. 4. Paper made from *Daphne cannabina* (EBC 44902). The donation of 'botanical and ethnobotanical collections' from the India Museum (see Desmond, 1995) brought 2,275 samples to the Economic Botany Collections in 1880.

Group (<http://www.bioregional.com/pape/buyrecycled.htm>). *Daphne* aside, plants named *papyracea* or *papyrifera* (derived from the Latin meaning ‘made from papyrus reed’), most notably in *Betula* (*Betulaceae*) – a handsome and much planted ornamental tree – but also in genera such as *Commiphora* (*Burseraceae*) and *Smilax* (*Smilacaceae*), have barks that may have a paper-like appearance rather than be useful for paper. The same applies to *Boswellia papyrifera* (*Burseraceae*) and *Tibouchina papyrifera* (*Melastomataceae*) but the EBC do contain samples of rice paper *Tetrapanax papyriferus*, the sole member of the *Araliaceae* represented as such.

Like cannabis, the English word hemp has its etymological origin in the Greek word *kannabis*. It too has been applied to a wide range of plants. Among them as papers in the EBC are one of the most familiar, Manila hemp *Musa textilis* (*Musaceae*), and several samples of Sunn hemp *Crotalaria juncea* (donated by the India Museum). Despite the size of the *Leguminosae*, there are only seven genera other than *Crotalaria* represented as paper samples in the EBC. Other species called hemp of one sort or another, but without paper samples in the EBC, include bow string hemp *Sansevieria* spp. (*Dracaenaceae*), some fibre of which came from Sierra Leone and was donated by the 1924 British Empire Exhibition, and hemp bush or Victorian hemp *Plagianthus pulchellus* (*Malvaceae*), that came via the Royal Botanic Gardens Melbourne from W.R. Guilfoyle, a planter and garden designer (and Director there from 1873). It was said of him: ‘He does with his trees what a pianist tries to do with his music’ (see Desmond, 1994). A dually artistic and practical nature certainly emerges from notes accompanying this Australian specimen: ‘A pretty and graceful shrub or small tree, chiefly inhabiting river banks. Its bark supplies a fibre of excellent quality, which might be converted into textile fabrics, fishing lines or nets and many other articles of domestic value’. Doubtless ‘other articles’ could include paper.

With the fourth family, the *Cyperaceae* (with paper samples from six genera), where better to start than with papyrus. The oldest of the 22 specimens in the EBC are Ancient Egyptian but, unfortunately, lie beyond the remit of this account since none is paper. Some specimens are merely plant parts such as stems and leaves, while in others the fibrous quality of the species has been exploited to make items such as head pads, a wreath and a ball. Papyrus did attract some eminent people. Among the nineteenth

donors were the explorer, artist and naturalist Thomas Baines (1822–1875), who was a member of David Livingstone's 1858 Zambezi expedition, the German botanist Georg Schweinfurth (1836–1925), and the archaeologist Sir William Flinders Petrie (1853–1942). We have to wait until 1930 however for the first actual paper samples of papyrus to reach long-term storage at Kew. Fittingly, they came from the greatest papyrus swamp of all, the Sudd in Sudan, and were part of an investigation into the paper making qualities of local plants. Samples of papyrus and other plants, including the common reed, were forwarded by Major Thomas Chipp, Kew's Assistant Director, to the Imperial Institute for analysis and of each of them a stapled series was returned to Kew with details of how they were prepared. In each case parts of the plants (mainly the stems) were digested with caustic soda for 3–4 hours at temperatures of 140–150°C and the resulting yield of dry pulp was recorded as a percentage, both species producing about 40. The results were compiled into a report and sent to the Chief Conservator of Forests in Khartoum but the consequences of the work are not known. Uganda at any rate had its own papyrus paper factory until the 1960s (Alan Hamilton, pers. comm.); from Entebbe, another Conservator of Forests had sent Kew some papyrus fibre board samples in 1948 so maybe this initiative did pay off.

Given the success of papyrus – it continued to be used in Europe until about the twelfth century – it is scarcely surprising that other species in the *Cyperaceae* have also been investigated, particularly in a 'new' country like Australia trying to establish itself as a viable economic entity. With Baron Ferdinand von Müller (1825–1896) at the helm of the continent's botany, including 16 years as Director of the Royal Botanic Gardens, Melbourne (he was Guilfoyle's predecessor), more than a hundred specimens reached the EBC at Kew, including paper samples of what he named *Cyperus lucidus*, *C. vaginatus*, *Eleocharis sphacelata* and *Scirpus lacustris*. UK species also came under investigation at the time. Among a whole range of items collected in the middle decades of the nineteenth from as far away as China and as close as the River Tay and then donated by a medical doctor, W. Lauder Lindsay, is some paper made from cotton grass *Eriophorum angustifolium*. The fibrous quality of the perianth bristles would attract the interest of anyone looking for a source of paper, but why *Cyperus longus* in Guernsey

was investigated is not at all clear. A letter with the collection to Assistant Director William Thiselton-Dyer, dated 25 May 1874, states that the author, S. Elliott Hoskins, had taken out a patent on paper making from this species in 1855. 'But', it goes on to say, 'as the raw material does not grow wild in sufficient abundance in the British Isles, the scheme, as a commercial enterprise, was abandoned'. We know from notes with a second collection of *C. longus* from Guernsey that Hoskins was gifted enough to be a Fellow of the Royal Society so how had he apparently overlooked the scarcity of the plant as an issue?

Other monocotyledonous families have few paper samples in the EBC. While von Müller's sample of *Juncus pallidus* is the only one in the *Juncaceae*, there are just three in the tropically important *Palmae* (one each of the genera *Nypa*, *Phoenix* and *Serenoa*), one in the *Pandanaceae* and none at all, less surprisingly perhaps, in the *Orchidaceae*. The much smaller ginger family *Zingiberaceae* has a single paper specimen that, dating from 1914, shows Kew's continuing role as botanical entrepôt on the eve of World War One. Accompanying it is an extract from *Kew Bulletin* referring to what is now *Hedychium spicatum*: 'A bundle of stems of *Hedychium flavescens* was recently received from the Director of Agriculture, Ceylon, in order that the paper-making qualities of this species might be tested in comparison with *Hedychium coronarium*. The material was accordingly submitted to Messrs. Clayton Beadle and Stevens.' They in turn reported back that it yielded paper equal to 60 per cent of the dry weight of the stem, 30 per cent less than that of *H. coronarium*, but otherwise the two species were similar in their suitability.

There is clearly no correlation, as far as representation as paper samples in the EBC is concerned, with the size or overall economic importance of plant families. In the eudicots, there are none among the *Compositae*, *Labiatae* and *Rubiaceae* for example. With the notable exception of *Broussonetia* spp., the EBC are generally poor in paper samples from trees. Perhaps the most glaring gaps are the eucalypts (*Eucalyptus*, *Myrtaceae*) and pines (*Pinus*, *Pinaceae*) that provide much of the hardwood and softwood paper pulp in use today. A recent gap such as this may simply reflect contrasting roles for Kew: in the nineteenth century as the Empire's main port of call for all useful or potentially useful plants, but in the twentieth turning away from those plants that have attained sufficient

commercial eminence to support their own research and development institutes, and concentrating on what we might call now the rest of plant diversity. Whatever the case, part of the charm of long established collections such as the EBC is their nature – quirky, ad hoc, and unsystematic. And research on them, and on their plants and uses, invariably uncovers people too of a diverse nature. One of the more unusual claims to fame for a Kew collector belongs to Captain William Alexander Kerr of Folkestone. Quite why, in 1910, he provided paper samples from Burma made from *Bambusa polymorpha* is not clear, but as a much younger man, on 10 July 1857 at Kolapore in India, he ‘with a small party went to attack the position taken up by mutineers in the stronghold near the town. The attacking party had no guns and the enemy kept a ceaseless fire, but Lieutenant Kerr made a dash at one of the gateways with some dismounted horsemen and forced an entrance.’ The attack was successful (<http://www.chapter-one.com/vc/>) and he became one of only 1354 recipients of the highest decoration awarded to British and Commonwealth forces, the Victoria Cross.

While many paper collections seem to represent an individual interest in the potential application of a particular plant, the many donations to Kew of Thomas Routledge testify to a more sustained approach to trawling the plant kingdom. Author of a number of pamphlets, including *Textile Plants; a few remarks on a new and economical method of extracting their fibres by patent machinery* published in 1856, and best known for his development of esparto grass as a source of paper (Bower, 1999; see Vol. 19, Part 1: 36 and Plate 435), he worked at the Ford Works Co. paper factory (also called the Fords Paper Mill; see Walker, 1984 for its history) in Clanburgh, Sunderland. Between 1874 and 1883 he donated more than 50 collections to Kew of species tested for their paper making qualities (Fig. 5). Their geographic and taxonomic origin is widespread, for example the sedges *Fimbristylis spadicea* from Mexico and *Lepidosperma gladiatum* from Australia, bamboo from India (and many other grasses), *Heliconia bihai* (*Heliconiaceae*) from Trinidad and Tobago, *Ficus infectoria* from the East Indies, and *Populus tremula* (*Salicaceae*) from Sweden. Kew itself may have been a source of material for research (then as now), as with the leaves of New Zealand flax *Phormium tenax* (*Phormiaceae*) sent by Joseph Hooker to Routledge and then returned in processed form. Not all plants were suitable however. In 1875, Routledge wrote to William

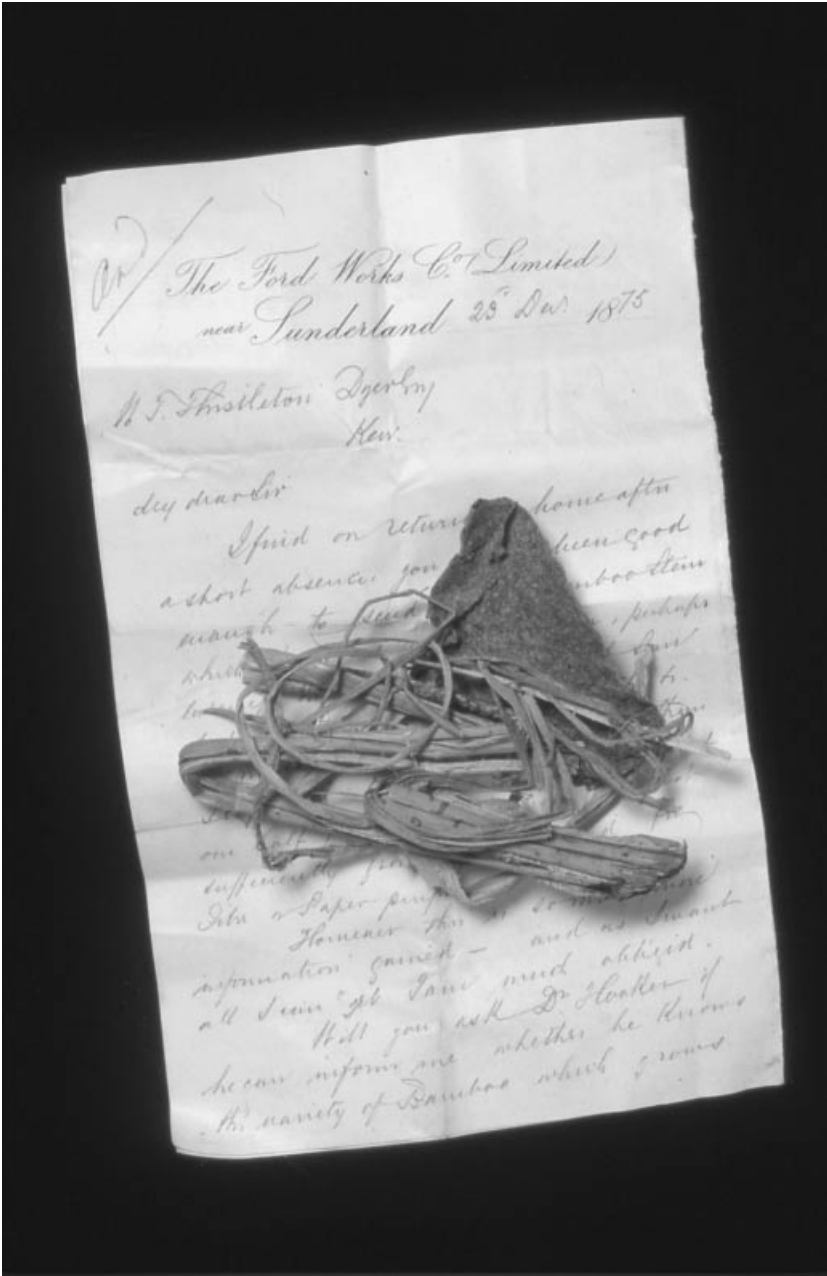


Fig. 5a. A letter dated 23 December 1875 from Thomas Routledge to William Thiselton-Dyer, accompanying a sample of paper from Manila hemp *Musa textilis* (EBC 29616).

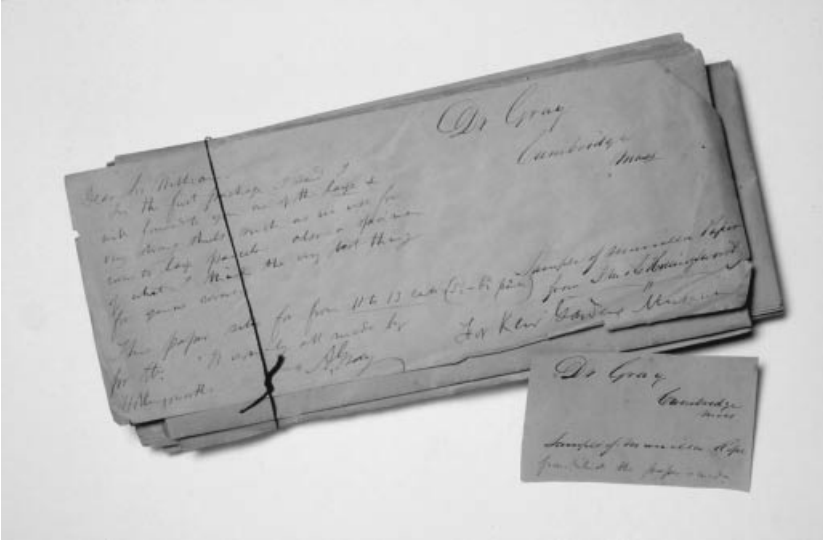


Fig. 5b. A letter written on *M. textilis* paper from Asa Gray, professor at Harvard University (and whose major work, known now as *Gray's Manual of Botany*, is still a standard reference) to Sir William Hooker in 1851 (EBC 29608).

Thiselton-Dyer about *Pandanus odorifer* (*Pandanaceae*): 'I have sent you sample of the stem of the Screw Pine to show the characteristics of the fibre as unsuitable either for a textile or for paper making purposes'. Routledge seems a character most determined to try anything he could get hold of, and badgered Kew for botanical information to help him. How Kew's two top men must have smiled when they read in one letter: 'I am afraid you will deem me a most troublesome correspondent for thus so frequently troubling you!' Of course one legacy of their tolerance and interest was a continuing supply of collections from Routledge. As with many other items in the EBC, one wonders if they have any duplicates from the time anywhere in the world.

The EBC show that recycling was no less a focus of interest previously than it is today. They include paper samples made from waste material and sometimes mixed with an array of plants: rags with fibre of banana *Musa × paradisiaca* (another Routledge donation), old netting with Mexican poppy *Argemone mexicana* (*Papaveraceae*; sent from Madras by a Dr Cleghorn; Fig. 6), gunny bags made of jute *Corchorus olitorius* (*Tiliaceae*) and the refuse of both

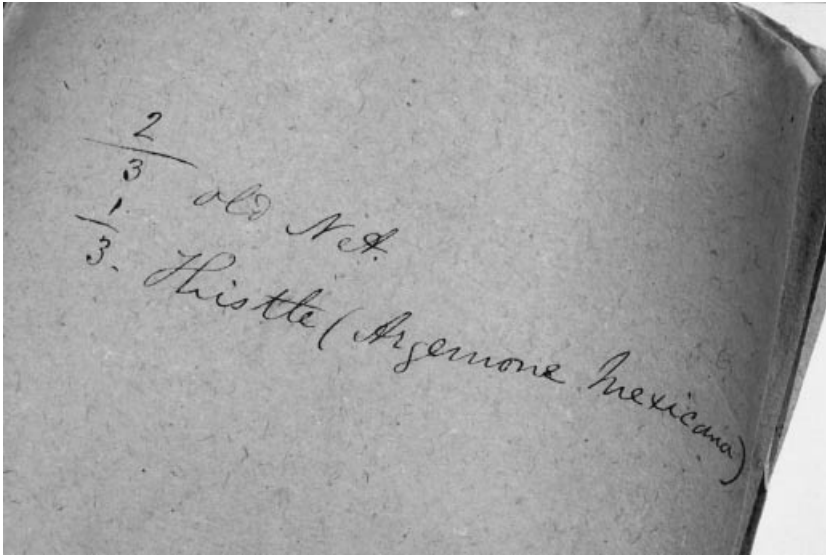


Fig. 6. Paper made from $\frac{2}{3}$ old net and $\frac{1}{3}$ *Argemone mexicana* (EBC 41245). Other samples have differing proportions of the same constituents. The donor, Dr Cleghorn, made 20 extant contributions to the Economic Botany Collections, the earliest collected in 1847.

sugar beet *Beta vulgaris* (*Chenopodiaceae*; UK, 1876) and tea *Camellia sinensis* (*Theaceae*; Sri Lanka, 1999).

In the end, the ubiquitous presence of cellulose in vascular plants may make it technically possible to make paper out of all of them. This extends beyond the Angiosperms and Gymnosperms (including *Gnetum gnemon* (*Gnetaceae*), a sample of which originated in the Koloniaal Museum Haarlem in 1885), to ferns such as bracken *Pteridium aquilinum* (*Dennstaedtiaceae*). Dr Lauder not only presented some bracken paper to the EBC, but had also included the species (and a Captain Brown's Patent for it) in lectures published in a journal called the *Scottish Review* in 1858–1859 (this is mentioned in a book extract filed by the Centre for Economic Botany and titled 'Syllabus of lectures on substitutes for paper-material'). Although in this extract he dismissed 'Flowerless plants' as fibre producers since they consist 'wholly, or in great measure, of cellular tissue', it is worth speculating whether bryophytes could be used for paper. The genus *Polytrichum* offers one of the best possibilities. Unlike most mosses their stems have a specialised central conducting tube, and they have been made into a number of surprisingly robust

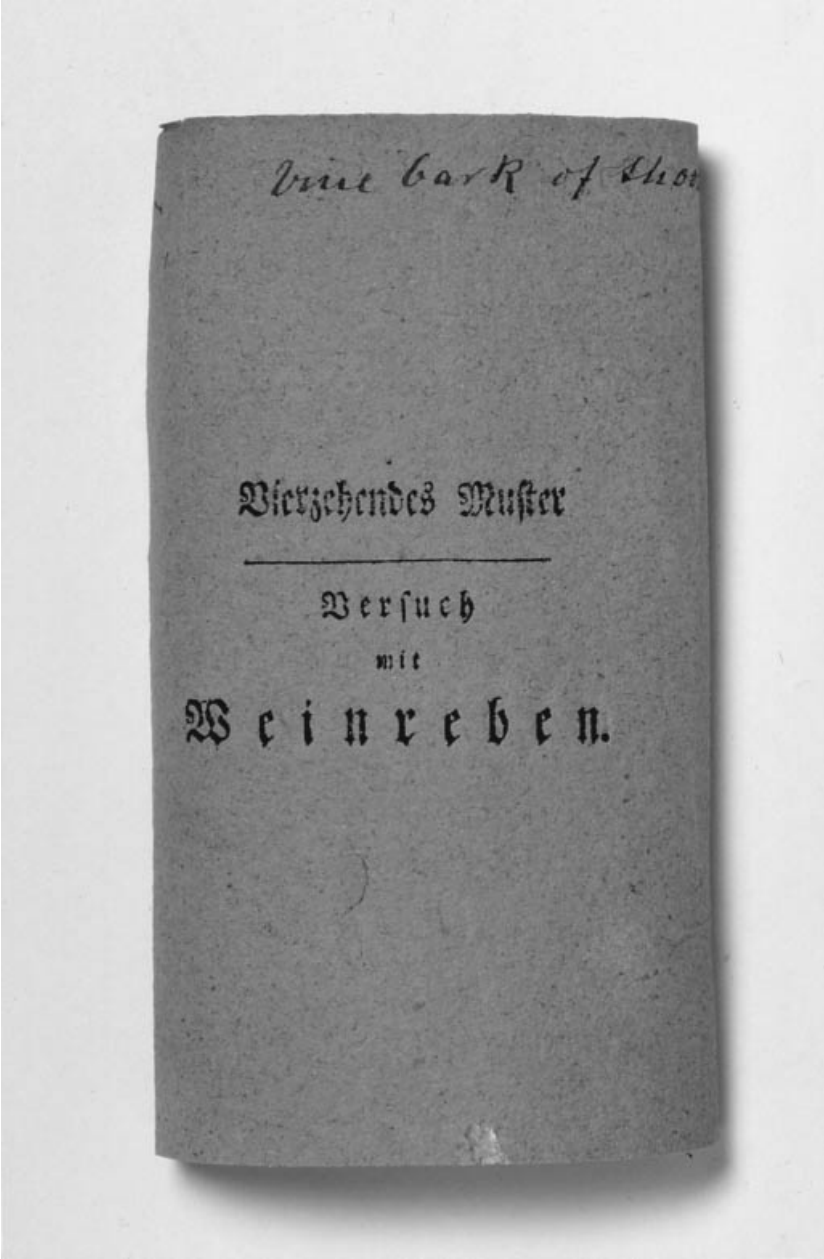


Fig. 7. Sample of paper made from grape, *Vitis vinifera* (EBC 62498). The writing on the paper translates from the German as 'Fourteenth sample. Trial with grape vine.' The donor, Daniel Hanbury FRS, was a pharmacologist, working for the family firm of Allen, Hanbury and Barry (Desmond, 1994), and a prolific donor to the EBC in the latter half of the nineteenth century.

objects. In the EBC there are a hassock, a basket and several brooms of the genus so its strong fibrous quality could be exploited for paper (if that is the wish!) as have so many other plants with dual fibre and paper roles.

Numerous families – from *Aceraceae* to *Vitaceae* (Fig. 7) – have been omitted from this overview and many of the examples selected have been old rather than new. But the EBC are by no means just obscurely relictual. Those on display in Kew's Museum No. 1 elicit the most enthusiastic of responses from even the youngest of visitors. They are further kept alive not only by research and the application of different disciplines to add new nuances of meaning and understanding, but also by a continuing of the basic task of acquisition. To what this acquisition is directed is the challenge for the future. It will certainly rest on at least one premise however: that since both plant diversity and cultural diversity are under threat, so too are many of the sorts of plant products in the EBC, including paper. From the papyrus of Ancient Egypt onwards, paper has had a profound impact on human life. For the last century and a half the EBC provide their own characteristic sampling of what has been tested and used. Whatever their shortcomings, there are still many levels at which we can appreciate them and the efforts of earlier collectors and curators. With time, perspectives change and it would be interesting to know how our successors will view current acquisitions for the EBC such as the latest one of all, sheets of paper made of *Dombeya madagascariensis* (*Sterculiaceae*) in the Antaimoro area of Madagascar and donated by Richard Kirby of London during the writing of this article.

ACKNOWLEDGEMENT. Thanks to Fumiko Ishizuna (School of Horticulture, Kew) for the translation for Fig. 3.

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