Is Jamaican Lace-Bark (*Lagetta lagetto*) a Sustainable Material?

EMILY BRENAN
Textile Conservator, Textile Conservation Ltd., Bristol

MARK NESBITT
Curator, Economic Botany Collection, Royal Botanic Gardens, Kew

INTRODUCTION

The inner bark of trees is a well-documented textile material in many parts of the world; for example, as tapa cloth in the Pacific and as a variety of barkcloths in West Africa. Varied production techniques, including copying of young stems, and careful harvesting of bark from larger tree trunks, enable sustainable harvesting of this useful and often symbolically-charged resource.

One of the most remarkable, yet least known, bark textiles is Jamaican lace-bark, made from the inner bark of *Lagetta lagetto*, a small tree of the limestone forests of central Jamaica. The inner bark comprises several layers that, if separated and methodically and carefully pulled, produce a white and regular natural net-like material. It is not known whether lace-bark was used by the Taino Amerindians, the pre-Hispanic occupants of the three islands in which the trees grow: Jamaica, Cuba and Hispaniola. The costume historian Steve Buckridge has plausibly suggested that the use of lace-bark as a textile might have been introduced by slaves coming from West Africa, where there is a strong tradition of barkcloth use.

Lace-bark’s use as a textile and lace substitute for clothes and accessories is documented by some of the earliest writings about Jamaica, such as Sir Hans Sloane’s *A Voyage to Jamaica*, reporting on his stay on the island between 1687 and 1689. Lace-bark is mentioned in subsequent accounts until the early 20th century. The material had other uses, primarily in the making of rope and whips (notoriously, for use on slaves) on the island. The Economic Botany Collection at the Royal Botanic Gardens, Kew has a collection of about 15 Jamaican lace-bark items that are representative of its use for clothing and souvenirs in the period 1850-1950 (Figs 1-4). It was the first author's student conservation project on a mid-19th-century bonnet at Kew (Figs 5-6), carried out at Camberwell College of Arts, that led to a wider research project and field trip to Jamaica reported here.

Widespread production of lace-bark souvenirs appears to have ended by about 1930. Some use continued until the 1960s and an attempted revival in the 1980s came to an end for reasons including the devastating effects of Hurricane Gilbert. The most recent article on lace-bark notes that for the lace-bark tree, the picture we gain is of a species once plentiful and well documented for its uses but now of unknown status, unused, and apparently forgotten.

Today the tree is rare, raising the question of whether lace-bark use in Jamaica came to an end because this natural resource was exhausted by over-exploitation. An alternative explanation is that traditional knowledge of how to maintain the tree populations has been lost with the decline in lace-bark use, leading to a decline in tree numbers. A careful search of literature, and fieldwork in Jamaica, has revealed much information on use of lace-bark, but has not found the critical data on management of the tree and harvesting and processing of the bark. These data are not only of historical interest; they are also fundamental to any attempt to revive this crafts associated with Jamaican lace-bark.

To fill this gap, we draw on historical sources to assess the scale of lace-bark use from the 17th century, following the British conquest of Jamaica in 1655, to the current day, and compare this to reports of the abundance of lace-bark trees in the past and in modern ecological studies. More detailed accounts of the conservation of the bonnet, and the social history of lace-bark, will be published elsewhere.

Fig. 1 Lace-bark cap ornamented with seeds, made for wear or as an art item. The size indicates that it was made for a child, and the style suggests that it predates the date of donation. Given by Mr Nathaniel Wilson. Bath Botanic Garden, Jamaica, in 1861. Economic Botany Collection 19490, Royal Botanic Gardens, Kew.
THE TECHNOLOGY OF LACE-BARK

The inner bark of trees is the layer of phloem tubes that carry nutrients from the leaves down to the roots. It lies between the woody part of the stem, the xylem, and the corky outer bark, the periderm. Lace-bark production comprises three steps: obtaining the whole bark from the tree, extracting the inner bark and opening up the dense mass of inner bark to create a lace-like material. None of these steps is well documented.

Descriptions of lace-bark vary in their accuracy and level of detail. Techniques and technology often appear to be assumed rather than observed. These two quotes illustrate the unreliability of much of the literature:

...the inward Bark is made up of about twelve Coats. Layers, or Tunicles, appearing white and solid, which if cut off for some length, clear’d of its outward Cuticula, or Bark, and extended by the Fingers, the Filaments or Threads thereof leaving some rhomboidal Interstices, greater or smaller according to the Dimensions you extend it to, form a Web not unlike Gauze. Lace, or thin Muslin.

It has an outer bark. Strip that off and you will find an inner bark consisting of fold after fold of lace.

The first quote is by Sir Hans Sloane and is most accurate; the second, by Vanderpoel, is distant and romanticised.

Interviews carried out in Jamaica in 2010 with people who had practised the craft in Jamaica as late as the 1990s confirmed that the bark was removed in strips from the tree and then processed. Removal of the bark from the tree in recent times either involved felling the whole tree or severing a branch for use. The outer bark was discarded and the inner bark used to prepare the lace-bark. The inner bark is formed of dense but very thin fibrous layers which can easily be peeled apart (Fig. 7). Once these layers are separated they can be stretched horizontally across the fibre orientation (Fig. 8) to form the textile or 'lace' (Fig. 9). Stretching opens a network of rhomboids in the bark giving the appearance similar to net or gauze.

This process of separation and stretching could be done straight from the tree, if the bark is still moist then there is no need for any soaking or boiling. If the bark dries whilst working then soaking is required to maintain suppleness. The bark was supplied to craftspeople by rural farmers as it was not easily accessible or easy to harvest. In the latter part of the 20th century, the people who harvested the material for
use as a textile would thus not have been the ones to use it. It was either teased out (Fig. 10) or remained in its dense form (Fig. 11); in this case the bark would have been boiled to soften it and make it workable. Once stretched the material could be used as a textile after sun-crying. Rinsing or soaking would also soften the material to the degree required by removing naturally-occurring stiffening substances. Harvesting was carried out by men and processing mostly by women.

There is evidence that more complex production methods had existed in the 19th century and had been lost by the 1950s, including the use of ‘a round stick of hard wood’ to beat lace-bark into lace. A rare account of bark harvesting is given by the great naturalist Philip Gosse, probably based on his brief landfall in Haiti in 1846:

His quick and trained eye soon detected a young lagetta tree, the bark of which he cut through in two rings, some half-yard apart. Then, by a longitudinal slit, and by the help of his knife-point, he took off the cylinder of bark from the inner surface of which he readily separated a thin stratum; this, when pulled open, presented a loose, fibrous texture, hardly to be distinguished from manufactured lace. This he spread in the sun to dry.

Sun-drying is also referred to in this account of 1879:

In order to be bleached properly it is drawn out as far as the fibres will extend and exposed to the sunshine, being frequently sprinkled with water. It is then washed with soap... it acquires a degree of whiteness equal to the best artificial lace.

Nathaniel Wilson, writing in 1855, notes that the various woody sources of inner bark in Jamaica

will annually produce two crops of shoots, from which good fibre may be obtained... the method I have pursued, as being the most easy and simple, is this:- Macerate the shoots until the cuticle or outer bark separates freely from the true bark. . . .

However, it is unknown whether coppiced shoots could produce sheets of lace-bark large enough to account for craft rather than manufacturing uses. Other sources refer to ‘old’ or 20-year-old trees.

**EVIDENCE FOR THE SCALE OF LACE BARK PRODUCTION**

There are many references to lace-bark in travellers’ books and in collections (as Sir William Hooker wrote in 1856, ‘Every one has heard of the “Jamaica Lace-Bark”‘), but it is hard to know whether this is because lace-bark was a relatively abundant material, or one that attracted exceptional attention, or both.

The many displays of lace-bark items at World’s Fairs during the 19th century indicate a perceived status or potential within the Jamaican economy. Displays included the Great Exhibition of 1851, in London, the International Exhibition of 1862, also in London, the New Orleans World Cotton Centennial or Exposition and World’s Fair of 1884, the Coronation Exhibition of 1911 and the British Empire Exhibition of 1924, to name a few.

However, more compelling evidence for the everyday importance of lace-bark is to be found in advertisements for shops in Jamaican newspapers. These are common between 1900 and 1925, occurring as frequently as weekly during 1903. The items sold were mostly doyleys and were sold as souvenirs or ‘curios’ to the tourist trade (Figs 12-13). In 1907 Algernon Aspinall wrote:

The tourist will doubtless bring back with him many souvenirs of places visited, such as lace-bark doyleys... and lace-bark whips... to mention only a few of the articles more commonly purchased.

In a children’s book of 1883, the girls go to purchase native products at shops in Kingston as gifts for their aunt in
England, including these lace-bark fans... and these d'oy-d'oy what is it? - made of flax! Newspapers also refer to the sale of the raw material, a request for the raw material, a request for skilled craftsmen, and the sale of lace-bark items. This indicates a substantial trade.

Sale at markets indicates a level of established economy as does the sale of the material by various reputable charities and bodies including the Lady Musgrave Women's Self Help Society, the Orphanage for Girls at Half-way Tree, and the Jamaica Tourist Information Bureau. As William Hooker, Director of Kew, noted in 1856:

Ornamental articles made of Fibres. Many of these are, indeed, more curious than useful; yet they should not for that reason be despised, seeing that they give employment to the poor and industrious.

Royal gifts and ownership elevate the status of the material further; King Charles II was presented with a cowl and ruffles by the then Governor of Jamaica, and in 1851 Queen Victoria was given an entire dress made of the material at the Great Exhibition.

ECOLOGY AND CONSERVATION OF THE LACE-BARK TREE

Lagottia leotetia (Sw.) Nash is a small, narrow tree growing from one to nine metres high. It belongs to a group of small trees that grow in the sub-canopy of the forest, on rocky limestone slopes. Their habit was described in 1830 as

...very dry situations on marly limestone hills, where there is not a particle of earth to be seen. The young plants grow in the crevices, or honeycomb, as it is called...

The most detailed record of its distribution, in the Flora of Jamaica, gives five locations, running along the central spine of the island's limestone hills, from the Cockpit County in the west, to just a few miles northwest of Kingston in the east.

These all lie in the wet limestone forest of the interior, in rugged karstic environments at an altitude of 450-800 metres. Due to the difficulty of access, these have been little studied. The botanical literature of the last 100 years is almost silent on the abundance of Lagottia. The standard flora records the tree as 'occasional' (one step up from rare) in 1972, but a detailed survey of the Broom Hall area of wet limestone forest found 79 species, but no Lagottia.

Flatter areas of the uplands were cleared for agriculture in the 17th and 18th centuries. The 20th century saw a rapid erosion of Jamaica's remaining forest, from 32% of land cover in the early 1920s to 18% in the early 1950s, to 6-7% in the 1970s. Deforestation continued at an annual rate of 3.3% in the 1980s.

Keron Campbell, Botanist in the Natural History Division at the Institute of Jamaica, Kingston confirmed that the tree still grew in Jamaica and that he had seen it in several parishes during field work in recent years. No work has been done to ascertain numbers of the tree and whether it should in fact have protected status. It was not listed with the Caribbean Centre of Plant Diversity in 1997 (Pearman and Prendergast, 2000) and is not on the IUCN Red List today.

How does the very limited modern distribution compare to the past? There are few eyewitness accounts of the actual tree, probably because its habitat was and still is remote from the main settlements and roads of Jamaica, most of which lie...
at lower altitudes, but there are second-hand accounts of its \textit{intermittent} growth during his stay between 1657 and 1659, during which he had little opportunity to travel inland, says

\begin{quote}
I had it [Lagetia] from Mr. Laming, who sent it me from Luidas, an Inland, mountainous, plantation, where the Trees grew in great Plenty.\textsuperscript{11}
\end{quote}

Patrick Browne writes in 1756 that 'This tree is pretty common in the woods of Vere and St. Elizabeth's', a view echoed by Edward Long in 1774: '...common in the woods of Vere, Clarendon, and St. Elizabeth'.\textsuperscript{12} An anonymous but well-informed article of 1861 states that

In Jamaica it is common in the woods of the parishes of St. John, Vere, Clarendon, Manchester and St. Elizabeth's, and the south side of the island and generally in the mountains of the interior and north side parishes.\textsuperscript{13}

In 1916 Lagetta was considered as a source of twine; it was noted that although the tree was abundant in Pedro, St Ann, it was not as plentiful in every district, and the tree took a score of years to mature.\textsuperscript{14}

The tree was also commonly planted in botanical gardens around the world. It is recorded at Kew from 1844, Glasnevin in 1879, Sydney in 1895, New York in 1902 (received from Kew) and was under cultivation as a trial fibre plant in locations as diverse as Algeria (species untested) in 1900 and Sri Lanka in 1919. Remarkably, the tree appears not to be grown in any botanic garden today. Two living plants were located by the first author, in botanical gardens at Glasnevin and Brussels, but were found to be mis-identified.

\section*{Discussion and Conclusions}

Historical evidence for use and ecology of the tree both suggest that lace-bark production took place on a substantial scale from c. 1655 (or earlier) to 1920. Throughout this period there is evidence for its use as clothing by all classes of society in Jamaica, as well as for items such as whips and cordage. In the late 19th century a significant souvenir industry emerged, which is well represented in Kew's collections. There are hints that larger-scale cordage production may have taken place, and it may be that the use of beaters and of soaking refers to this, whereas decorative lace might have been made purely by hand, as is more often referred to. The tone of literature written by both visitors and residents, and references to lace-bark in local newspapers, all confirm its routine use.

It is striking that references to the tree between the 17th century and the early 20th century use terms such as common and abundant. There is no hint that the distribution of the tree spread outside its current delineation by the limestone uplands, or that it was ever cultivated (except in botanical gardens). Modern ecological studies show that Lagetta is just one scattered component of a highly diverse under-storey forest. Taken together, this evidence suggests that larger-scale production of lace-bark was not based on exploitation of formerly existing pure stands, or by cultivation of the tree; it therefore seems unlikely bark was harvested by felling trees (as recorded in the 1980s) as this would not have been sustainable.

Worldwide, barks are harvested in very different ways (ranging from removal of small patches to peeling an entire trunk), depending largely on the response of the tree to being de-barked. There are hints, in the form of reference to the need for mature trees, and to harvesting of branches and
shoots, that Jamaican lace-bark may have been harvested by cutting these parts of the plant, resulting in pieces of branch similar to those held at Kew (Figs 14-15). Bark might also have been stripped from the trunk in pieces in the manner described by Gosse. We have insufficient information on the biology of the tree or the ethnography of traditional harvesting to be sure. However, harvesting of this kind is likely to have been sustainable, especially if combined with protection from other forms of damage. It is also clear that a significantly larger area of forest would have been available to harvesters before 1900. If lace-bark harvesting is to be re-established in a sustainable manner, it will clearly be necessary to carry out experimental work, informed by traditional practices in other parts of the world. Fortunately several genera of plants in the same Thymelaeaceae family are also used for their bark, and would be the obvious starting point for this kind of study.

The case of Jamaican lace-bark is a reminder that textiles can embody traditional knowledge that has, with the passage of time, been lost. Careful reading of artefacts, combined with ethnographic fieldwork and use of textual sources, can fill many of the gaps. It is clear that the period of large-scale use of lace-bark was marked by a relative abundance of lace-bark trees. However, the details of harvesting regimes remain obscure. Given the shared biological characteristics of inner bark, which govern its sustainable harvesting, we believe that cross-cultural surveys of bark production from other trees in other places are likely to be a productive step forward.

ACKNOWLEDGEMENTS

The authors are grateful to the Textile Society for inviting us to present this work at its Leicester conference. Emily Brennan thanks Lorri-Anne Harris, her project partner in Jamaica, Keron Campbell and Tracey Combessie of the Institute of Jamaica, Kingston and the people of Cockpit Country who helped so graciously with her research as well as others who assisted in Jamaica. Thanks also to Eve Graves at Camberwell College of Arts for inspiration and broadening the horizons and capabilities of conservation. Funding for her fieldwork is gratefully acknowledged from the Pasold Research Fund Ltd., The P&L Trust, Llandinam and the Worshipful Company of Stationers and Newspapermakers.

---

Fig. 14. The lace-bark tree, *Lagetta lagosta* from the Dictionnaire pittoresque *Histoire naturelle*, 1833-8, by Félix-Eduard Guerin (Au Bureau de Souscription, Paris). The textile and branch, leaves and flowers are all accurately drawn, but the image of the whole tree does not resemble the narrow, pyramidal shape of the lace-bark tree. It is likely that the artist worked from specimens and never saw the whole tree.

Fig. 15. Lace-bark branch with inner bark partially stretched. This type of