

Lampblack and Lead

DISCOVERING NATURE PRINTING

“ A fresh leaf is rubbed with verdigris and carbon; soaked in the right amount of colour it is printed on one of two large sheets of paper, so that an almost life-like image remains. ”

Girolamo Cardano, *De Subtilitate*, Book XIII (1550)

To the uninitiated, nature printing may seem like an extension of the ‘potato-printing’ many of us tried at school. Yet the medium has played a major role in the development of natural history texts since the Late Middle Ages.

One thing that hundreds of years of experimentation have shown is that there are no strict rules, and many degrees of complexity are possible, whether you are trying to create a taxonomically useful image or creating an artwork that utilises natural textures. Prints from pressed and inked botanical specimens usually show an amazing amount of detail; reconciling the right amount of ink to pressure on the page comes with practice—too little and the print is unclear, overload it and the print will lose detail. There is a voyage of discovery to be made into this world of fascinating printing techniques.

The Evolution of Nature Printing

Perhaps the best reference work for the history and function of nature printing is Roderick Cave’s *Impressions of nature: a history of nature printing* (2010). Works that used printed specimens for identification can be traced back as far as physician Conrad von Butzbach’s *Codex Auratus* in 1425. Von Butzbach coated paper with oil and used soot from a candle flame to create an impression of the plant specimen. The Late Middle Ages saw a growing interest in plants used for their medicinal properties, as well as the establishment of several botanic gardens (e.g. Pisa in 1543, Padua and Florence in 1545), and the rise of the *Herbal*. An accurate print could help physicians identify the correct species for their medicinal blends.

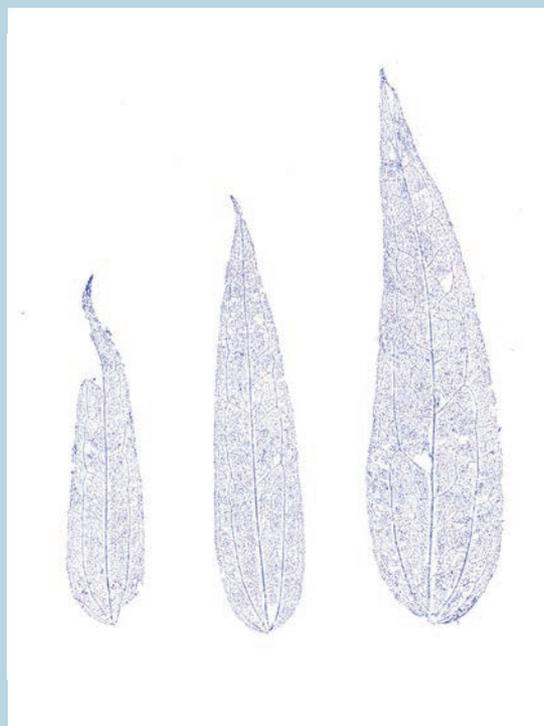
A similar attempt at nature printing was made by Leonardo da Vinci (1452–1519) who inked plants with lampblack and pressed them by hand onto the paper—his work *Codex Atlanticus*, produced between 1478–1519 and now housed in Milan’s *Biblioteca Ambrosiana*, shows a sage leaf print reproduced this way. By the late 1600s, the methods and means by which to create a nature print had spread across Europe, and by the 1700s works like *Botanica in Originali* (1733) by Johann Hieronymus Kniphof (1704–63) were being produced, where additional colours were being hand painted onto the original print.

The 19th century, however, witnessed several leaps forward in nature printing techniques. One of the earlier successes was the work of English botanist Anna Atkins (1799–1871), regarded by some as having produced the first photographic book. She had grown up around science (her father was a chemist and zoologist), and was inspired by polymath Sir John Herschel’s work with cyanotypes. Her work entitled *Photographs of the British algae: cyanotype impressions* (1843) used the cyanotype process, whereby a specimen is arranged on paper treated with potassium cyanide and ferric ammonium citrate, and placed in

direct sunlight. The paper reacts, turning blue, but stays white where the specimen was placed, creating a print of the species. Only ca. 13 copies of this work exist, one of them being in the library at the Linnean Society.

Another fascinating technique is the Japanese art of *gyo-taku* (fish-impression), which dates back to the mid-1800s. Fishermen would rub the fish with non-toxic sumi-e ink and then ‘print’ them by pressing rice paper on top. (More recently, an indirect method has been developed: the paper is first pasted on the fish using rice paste, then a cotton ball covered in silk is used to spread ink on the paper, and the detail of the fish scales will emerge.)

While nature printing had already produced some incredible works, previous methods had proved generally unsatisfactory because of problems achieving uniform impressions, and the problem of wear on the plants, which greatly limited the number of prints possible from any one specimen. The Holy Grail for printers was to find a ‘commercial’ means of nature printing—being able to take a large number of reproducible prints from one specimen (rather than ‘monoprinting’). It was not until the mid-1800s that the indirect method of nature printing was invented by Alois Auer (1813–69) and Andreas Worring (ca. 1806–unknown) at the Imperial Printing Office in Vienna in 1852, and improved by Henry Bradbury (1831–60). Auer’s method was to press a plant specimen onto a softened lead sheet, leaving an impression that could then be ‘lifted’ onto an electrotype copperplate. This plate could then be used repeatedly, and



RIGHT:
A nature print of skeletonised *Clematis* leaves

different colours could be added pre-press. Bradbury had studied Auer's discovery whilst in Vienna and patented his own version in London, unfortunately without acknowledging that the idea had originated with Auer. The controversy that followed is captured in *The nature-printer: a tale of industrial espionage, ferns and roofing lead* by Simon Prett and Pia Östlund (2016), and the dispute is said to have been a factor in Bradbury's suicide at 29. Bradbury's stunning books, *The ferns of Great Britain and Ireland* (1855) and *The nature-printed British sea-weeds* (1859–60) were published shortly before his death in 1860. *The nature-printer...* also explores Östlund's quest to re-create Bradbury's complex printing technique, a rare fusion of science, art and industry, which effectively disappeared a century and a half ago. The Society holds a beautiful limited edition copy of this title.

While nature-printed works enjoyed considerable success (even Erasmus Darwin owned a nature-printed plant guide: <https://exhibitions.lib.cam.ac.uk/curatorforaday/artifacts/erasmus-darwins-field-guide/>), they were mainly limited to subjects that were almost two dimensional in nature, and so fell out of favour as a commercial process.

Nature Printing at Home

The door to the fine art of nature printing was opened for me by the Linnean Society's recently-elected Foreign Member, Dr Frederick (Eric) Hochberg. Eric, a cephalopod specialist, also founded the Nature Printing Society in the USA in 1976 (<http://www.natureprintingsociety.org/>). The Nature Printing Society's Guidebook, *The Art of Printing from Nature*, provides an excellent overview.

I had been tinkering with some collagraph printing using pressed leaves. This led to some experimentation with production of skeletonised leaves—particularly prized in the heyday of nature printing as they showed the amazingly intricate filigree venation of the leaf—using the supposedly fool-proof method of boiling leaves in caustic soda for 2–3 hours. Apart from ruining a few saucepans and filling the kitchen with fumes, this has proved only partially successful. The narrow lanceolate evergreen leaflets of *Clematis armandii* are fairly tractable, as are the compound leaves of *Nandina domestica* (heavenly bamboo), but tender herbaceous plants such as *Alchemilla mollis* disintegrate to a pulp. It is a good way to appreciate the skill and experimentation of the nature printing pioneers.

When printing, once you have achieved your initial results with a single tone, the next challenge is introducing different colours, to generate an image that looks like a watercolour. Beautiful images of simple leaves can be produced relatively easily, but there are endless possibilities with colour and arrangement. There's no doubt that a quick course is a good place to start, and Pia Östlund herself will be running courses in Letchworth Garden City, Cambridge, and London's Chelsea Physic Garden in summer/autumn 2017.

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Recommended reading

Armstrong, C. & de Zegher, C. (Eds). 2004. *Ocean flowers: impressions from nature*. Princeton University Press: Princeton NJ

Cave, R. 2010. *Impressions of nature: a history of nature printing*. British Library & Mark Batty.

Prett, S. & Östlund, P. 2016. *The nature-printer: a tale of industrial espionage, ferns and roofing-lead*. The Time Press: Reigate, UK.

Gyotaku images: <http://www.oddiycentral.com/pics/gyotaku-the-traditional-japanese-art-of-painting-fish-with-actual-fish.html>



TOP:
The brown alga
Cystoseira granulata
from Anna Atkins'
*Photographs of British
algae: cyanotype
impressions* (1843)
© The Linnean
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MIDDLE:
Alois Auer's method
of plate-making
revolutionised nature
printing, which Henry
Bradbury refined
for his book *The
nature-printed British
sea-weeds* (1859-60)
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BOTTOM:
Plate 16, the male fern
or *Lastrea filix-mas*
from Henry Bradbury's
incredible *The ferns
of Great Britain and
Ireland* (1855).
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