Central to the washi-making process is sheeting, when the pulpy solution of fibers in water is scooped, shaken, and drained to form a single paper. Here, fibers of the paper-mulberry tree are suspended evenly in a water bath without sinking thanks to the addition of a viscous extract derived from the root of the sunset hibiscus. These base materials will be caught up and sieved, at even thickness, to form a single sheet of Sekishu washi. The intricate, random meshing of the plant fibers yields the uniquely beautiful texture of the paper and is also the reason for its strength.

Sekishu Washi Paper

Brand Highlights

- Crafted of non-wood plant fiber and truly sustainable: paper made from a one-year-old shrub can last 1,000 years
- Versatile applications for art projects
- Nature's purpose for the phloem and cortex base materials—bringing rigidity and flexibility to the stem—is rendered as a durable, resilient, and beautiful product

Sekishu washi, paper made from non-wood plant fibers, is a product of Hamada in western Shimane prefecture. This method of papermaking is said to have been introduced to this area by the poet Kakimoto no Hitomaro around the years 704 to 715. Today Sekishu washi is recognized by the Japanese government as a traditional craft.

Four studios continue to produce washi just as in olden times—by hand, one sheet at a time, primarily using the fibers of the paper-mulberry tree, as well as also those of the Oriental paper bush and the *gampi* plant. In Hamada any number of products are made from the fibers: calligraphy and drawing papers, stationery, and colored papers for art and decorative use in addition to the standard individual sheets called *banshi*. There is even growing interest among photographers in using Sekishu washi for their fine-art prints.

Notable for its sturdy yet malleable body, Sekishu washi ranks among the best of high-quality Japanese papers. It can be crumpled, rolled, and folded repeatedly without tearing. Its natural suppleness and durability are why it is often the preferred paper of choice in the restoration of cultural properties. It is water resistant, too. Sekishu washi also lends itself to sculpture. The elaborate demon, deity, and serpent masks worn in Iwami Kagura, a colorful performance art of the western Shimane region with deep folkloric origins, are made of it.

Still another characteristic of Sekishu washi is that it is ecologically sustainable, being fashioned from locally cultivated plants. Paper mulberry, for example, is ready for harvest as quickly as one year after planting. Nonetheless, stewardship is required to ensure a healthy and sufficient supply. Hamada's artisans face shortages of this critical material as the median age of their population increases and fewer hands are available to nurse the trees.

An order of standard white Sekishu-banshi is shown packaged and bound with paper-mulberry bark. Japan has more than 100 washi-producing traditions. Of them, Sekishu-banshi is recognized by UNESCO as an intangible cultural heritage, along with Hon-minoshi paper from Gifu prefecture and Hosokawa-shi paper from Saitama prefecture.

Paper-mulberry fibers immersed in a *fune* water-holding vat are scooped up and shaken onto a papermaking screen made variously of bamboo and reed. The fibers entwine as they are expertly shaken to uniform thickness. From the left are Masaru Nishita of Nishita Washi Kobo, So Kubota of Sekishu Washi Kubota, and Isao Kawahira of Kawahira. These young paper artisans are the future of Sekishu washi.

Shrinking, blotting

Writing, drawing

Twisting

Sheeting other materials

Modulating texture

Crumpling, creasing

Dyeing

Screening, filtering, manipulating light

Stenciling, silk-screening, printing

A versatile art material

Part of the great appeal of washi paper is how easily it lends itself to any number of secondary processes, whether during its manufacture or afterwards. Because it is handmade from start to finish, artisans can easily improvise any step of production. And the finished paper's natural strength and resiliency accommodate its tailoring in a range of different ways. Such versatility makes washi an attractive material for artistic expression.

Splicing, known as *kuisaki*, is one such creative use. Strips are ripped by hand to render rough edges. As the plant fibers will readily reknit themselves, two sheets of different colors can be combined to create two-toned papers, or multiple strips can be united to form a single sheet, with seamless gradations of one color blending into the next.

Hamada artisans are now working on a project that will bring overseas designers and artists to the locale for master classes in washi making. Once they have learned the basic techniques, these individuals will be invited to propose new and original designs for Sekishu washi.

Combining, layering

Gradating thickness

Cutting, tearing

Folding

Rolling, sculpting

Splicing

Above: Sekishu washi is made to order in various sizes, the most common being 1 meter by 60 centimeters. Here, an unbleached sheet of that size rests atop a less refined grade known as *jadoshi*. Literally "snake's body," its name is owed to the fact that this is the paper used to sculpt the eight-headed serpent in the popular Iwami Kagura dance, "Orochi." Although technically the quality of *jadoshi* is ranked lower due to its rougher fiber content, this very attribute is what enables the paper to hold up to the snake's writhing, gyrating motions.

Opposite page, top, and right: Sekishu washi designs by Shinya Kobayashi.

Sekishu washi: in a word, sustainability

The wood pulp used to make Western-style papers from the mid-19th century onward was taken from any species of tree, of any age. Branches, limbs, even mighty trees that had grown for 100 years were all reduced to pulp. Such papermaking consumed large swathes of forestland, and yet the useful life of those acidic papers turned out to be only 50 to 100 years. By the 1970s, paper degradation had become a real problem for many libraries abroad. In response to that crisis, non-acidic papers made with alkaline buffers were developed. Such papers are said to have a useful life of 300 to 400 years.

By contrast, washi is made from non-wood plant fibers harvested from shrubs that grow 2 to 3 meters a year. Papers made from a one-year-old plant can last more than 1,000 years. Clearly, a great strength of Sekishu washi is its sustainability.

The roots of sunset hibiscus are crushed to obtain *neri,* a viscous liquid. When added to the paper-making vat it helps to suspend the paper-mulberry fibers in the water solution evenly, and also works to bind them together as they are shaken, pressed, and dried.

Paper-mulberry plant

Stalks harvested in winter

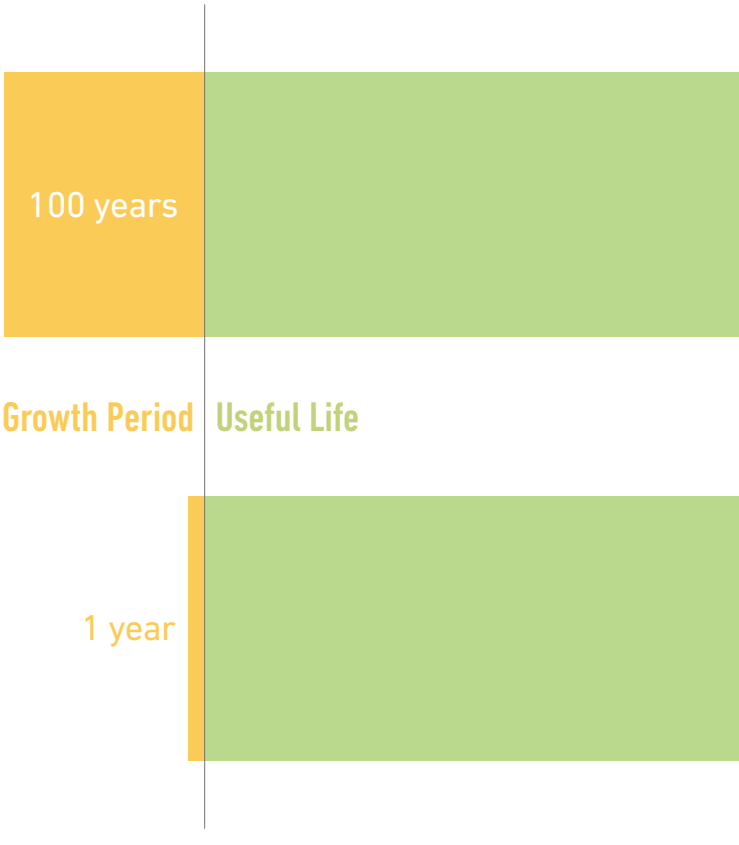
Boiled and stripped stalks

Phloem fibers after the epidermis and much of the cortex layer have been removed

Phloem fibers give rigidity and flexibility to the stem—they are a plant's living inner bark. Surrounding them are the protective cortex and epidermis. In some washi traditions the cortex is removed together with the epidermis. Sekishu artisans, however, leave it on to varying degrees, depending on the desired strength.

Western papers (wood pulp)

Washi (non-wood plant fibers)



Masaru Nishita of Nishita Washi Kobo at work in a field of paper-mulberry shrubs. The plants are cut down to the roots each winter. New shoots emerge in the spring and the plant soars to 2 or 3 meters in height over the summer. Its vitality is proof of the sustainability of Sekishu washi. To obtain good-quality fiber, however, the branches must be regularly pruned by hand.

300–400 years

In the manufacture of high-end books, at least, acid-free papers are now common in Japan. Yet while this material is said to have a shelf life of 300 to 400 years, no one knows for sure, as mere decades have passed since its introduction. The shelf life of washi, however, is already proven: in the holdings of the Shoso-in treasure house at Todaiji temple in Nara is a census register written on Minoshi paper that is dated 702—the oldest extant sample of washi on record. That's a useful life of some 1,300 years and counting.

In other words, paper made of wood pulp harvested from a 100-year-old tree may last 300 years, while the paper obtained from a one-year-old paper-mulberry bush can last for more than a millennium. Unlike Western-style papers, however, washi cannot be mass produced. The paper-mulberry crop must be tended and, whether the paper is sheeted by hand or machine, the pulp must be refined manually.

1,000 years

The freshly sheeted papers are transferred from the papermaking screens one by one and placed atop one another to form beds known as *shito*. Because the fibers of each sheet are so tightly intertwined, the layers magically remain separate without sticking. They will be left to dry overnight and then will be pressed to drain any remaining water. The batch shown here will be used to fashion the butterfly hinges of multi-panel *byobu* screens—a task for which supple and sturdy Sekishu washi is optimally suited. The artisan left a fair amount of the plant's *amakawa* cortex layer in the pulp for added strength; this explains the warm golden color.

A winter craft

From cultivation of the paper-mulberry shrubs to drying of the finished sheets, washi-making entails at least 20 separate processes. Although Sekishu washi will never be a product destined for large-lot orders, the hands-on focus at every step of its manufacture ensures that each individual sheet is of the highest quality.

The plant fibers are harvested in December. The papermaking follows from January to March, when the ambient temperature is just right for *neri*, the root extract used as a formation aid, to effect its magic. The artisans work in cold studios, dipping their hands into the icy pulp bath over and over again to craft up to 250 sheets a day. The luminescence of their product seems to capture the very quality of winter's soft light.

Assay		Unit		Sekishu Washi	Hon-minoshi	Echizen Hosho
Weight	Paper mass	g/m^2		22.0	34.0	64.9
Thickness	Paper thickness	mm		0.07	0.14	0.17
Tensile strength	Break strength when load is added	kgf	Vertical	2.86	3.80	3.20
			Horizontal	1.32	2.30	1.20
Tear strength	Force at time of tearing	gf	Vertical	179	239	347
			Horizontal	243	211	389
Folding endurance	Number of times paper folds before breaking	1kgf/fold	Vertical	3,600	3,517	5,165
			Horizontal	86	1,741	197

Excerpt of a physical assessment of washi conducted by the Sekishu Washi Engineers' Society

The table above shows the test results of strength comparisons between Sekishu washi, Hon-minoshi from Gifu, and Echizen Hosho from Fukui. The 0.07 thickness of the Sekishu washi used in the comparison was less than half that of the other two, underscoring its strength. The numbers also suggest that vertical shaking of the screen in Sekishu papermaking increases its durability on the vertical axis. Anecdotal evidence points to the resilience of Sekishu washi in water, too: it's said that in times of fire, Osaka merchants would protect their account books by tossing them into wells until the danger passed.

1 The outer bark of the stalk is scraped off to the phloem. A small amount of the cortex is left on.

2 The phloem fibers are boiled in an alkaline solution and then steamed, for softening.

3 The fibers are inspected and impurities removed. This work, too, is done completely by hand.

4 The fibers are struck with wood to loosen them. The batch will be flipped and pounded again.

5 The fibers are placed in a water vat with the hibiscus-root extract. The solution is stirred with a bamboo pole.

To the clean, cold water in the *fune* vat the artisan adds the paper-mulberry fibers and the mucilaginous *neri*. The soup-like solution is then stirred with a pole to spread the fibers evenly. Sekishu papermaking typically leaves some of the protective cortex layer on the fibers for added strength. For the batch shown here, which will be used to fashion hard-working paper hinges, a relatively large amount of the cortex was left—thus the pronounced yellow color.

The thickness of an individual sheet of paper is determined with each dip of the screen. Only practiced hands and eyes can gauge this to form multiple numbers of uniform, even sheets.

6 A paper-making screen is lowered into the solution, shaken just so, and lifted to form a uniform sheet.

7 Each newly made sheet is laid flat, with successive ones layered on top to form a bed.

8 After pressing, the sheets are separated and placed on boards to dry outside in the sun.

Hamada's living paper culture

Sekishu washi is used to make a range of attractive products, from stationery that showcases its texture to cushion covers that take advantage of its resilience and durability. These items and more can be purchased at the Sekishu Washi Center in Hamada, a community center where visitors can also try their hands at making washi.

The traditional performing art of Iwami Kagura has an inseparable connection with washi: its masks are sculpted of it. Based on ancient myths and performed at shrines to entertain the gods, the folkloric dance features fast-paced taiko drumming and lively flute melodies that delight young and old alike, as do the colorfully expressive masks. Lighter than wood and with a natural plasticity, washi lends itself well to shaping the dramatic faces. Sturdy *jadoshi* paper is layered many times to fashion the serpent's lightweight, glossy body.

Above: *Zabuton* cushions made from washi crumpled by hand and coated with persimmon juice, by Nishita Washi Kobo. From bottom to top, they have been in use for one, two, and three years, respectively.
Center: Book covers and coin purses made of dyed washi by Sekishu Washi Kubota and macramé woven of twisted washi yarn by Kawahira sit atop sheets of indigo-dyed washi.
Top right: Bread baskets made of washi cured with persimmon juice, by Nishita Washi Kobo.
Bottom right: *Kuisaki* washi wall at the Misumi Library in Hamada.

Far left: A shrine stage where night performances of Iwami Kagura are enjoyed by young and old. Nearly all 30 kilograms of the eight-headed, eight-tailed "Orochi" serpent are made with Sekishu washi.
Left: At their Kakita Mask Workshop, father and son Katsuro and Kenji Kakita fashion masks like that of Shoki, the plague-quelling god shown opposite.
Opposite page: Tiny pieces of ripped washi are pasted on a clay mold in layers (3). When the paper has dried and hardened, the mold is broken (5) and the decorative finishing begins.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